532-5.

EVANS "ALMETL"
FIRE DOORS & SHUTTERS
AND THE FAMOUS
"STAR" VENTILATORS

EVANS "ALMETL" FIRE DOOR

POWELL EVANS, PRESIDENT.

MERCHANT & EVANS Co.

PHILADELPHIA

NEW YORK
BALTIMORE
ATLANTA
CLEVELAND
WHEELING
CHICAGO
ST. LOUIS
KANSAS CITY

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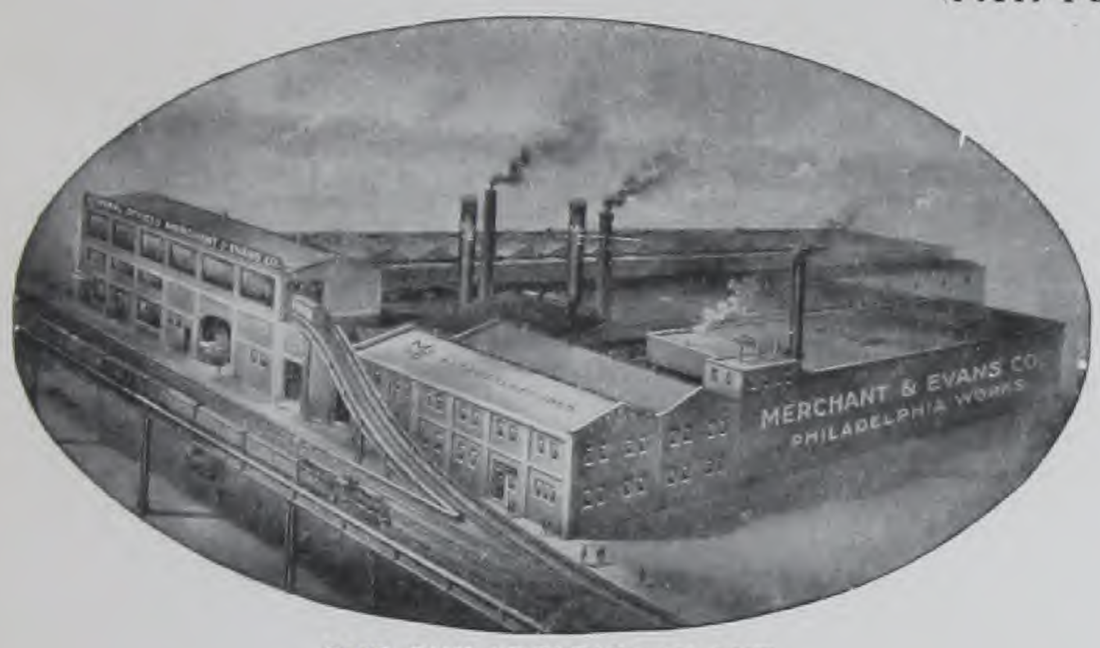
EVANS "ALMETL" FIRE DOORS AND SHUTTERS

(PAT. PENDING)



OUR PHILADELPHIA PLANT

Form an impassable fire barrier.
Constructed of steel and asbestos.
Rigid, non-warping and indestructible.
No wood to rot; no tin to rust.

THE WORLD'S STANDARD

Fully approved by Underwriters' Laboratories, Chicago, the Factory Mutual Laboratories, Boston, and National, State and Municipal Officials everywhere.

SERVICE AND FACILITIES

We have a large number of thoroughly experienced contracting and erecting Licensees established in all parts of the country. Herewith is an illustration of the cut used by our Licensees on their stationery. **It is your assurance that they have been selected by us as fully competent to care for the erection of our Evans "Almetl" Fire Doors, and Evans "Almetl" Fire Shutters, to accord with all Underwriters' requirements.**

Look for this cut on their Stationery

If you are not in touch with any of our Licensees, please write to our nearest office and you will be promptly furnished with full and complete information, and arrangements made for estimating on your requirements.

(NOTE.—Index on bottom of page 6.)

MERCHANT & EVANS Co.

PHILADELPHIA

NEW YORK
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CHICAGO
ST. LOUIS
KANSAS CITY

TRADE MARK M & E REG. IN U.S. PAT. OFF.

EVERYTHING IN METALS

WHEELING (WARWOOD), W. VA., WORKS AND WAREHOUSE—ONE OF OUR THREE LARGE PLANTS.

The Importance of Fire Doors and Shutters

is indicated by the fact that one-third of all fire insurance charges in cities are for exposure charges.

Yet despite this warning, despite the evidence of every big fire that the risk is reduced to a minimum by the installation of proper doors and shutters, there was no well made, well designed metal covering for unprotected openings that met the Fire Hazard adequately, until we originated the Evans "Almetl" Fire Doors and Shutters.

Approved by Underwriters' Laboratories and by officials everywhere because of their proven superiority, Evans "Almetl" doors and shutters have other great advantages. They are capable of economic and systematic shop production, they are adaptable to all conditions in plants of every character, and they are lowest in maintenance cost.

Through our Branches and numerous experienced contracting and erecting Licensees, distributed throughout the United States, we are able to give a service to architects, builders, and owners of properties, that solves the problem of the unprotected or improperly protected opening.

Most Fires are Preventable and Controllable

One of the principal remedies is to install fire doors to protect exposed openings in Division Walls or Fire Walls, of either old or new buildings.

An approved installation of Evans "Almetl" Fire Doors will reduce the annual insurance rate on property.

The Regulations of the National Board of Fire Underwriters, for the protection of openings in walls and partitions against fire, specifically state that:

"The great importance of Fire Walls as a safeguard to life and in preventing the spread of fire, and the fact that they are liable to be severely exposed to fire for considerable periods, makes it essential that all openings in such walls be protected by the most efficient methods."

The Evans "Almetl" Fire Door is of rigid, all-steel, indestructible construction. No tin to rust, no wood to rot, no thin covering to bruise; it has been given the very highest Standard Class A Grade Approval issued by the Underwriters' Laboratories, Inc., of Chicago, and is fully approved by the Mill (Mutual) Boston Laboratories. **It has been proved by experience and actual tests to be the best fire door on the market.**

Thousands of wood-core tin-clad fire doors have been replaced because of the effect of dry rot. Why pay double? The Evans "Almetl" Fire Door will last indefinitely and requires no repairs or expense to maintain.

You can avoid unnecessary charges for fire hazard by installing the Evans "Almetl" Fire Doors or Shutters.

MERCHANT & EVANS COMPANY,
POWELL EVANS, *President.*

To Architects, Contractors, Property Owners, and State and City Police and Safety Departments

Evans "Almetl" Fire Doors, after a series of rigid tests, were placed in the very highest Standard Class A grade (both Fire and Accident), by the Underwriters' Laboratories, Chicago, Ill., and have received the very best approval from the Factory Mutual Laboratories, Boston. **We strongly recommend that you specify these doors wherever maximum reduction in insurance rates is desired, lowest maintenance costs, and the highest degree of protection to both life and property.**

Those foremost in fire protection and prevention affairs throughout the country have recognized the superiority of our doors, as we have received over two hundred approvals from National, State and Municipal officials. A duplicate copy of one of these approvals is shown in cut.

Unlike other types of doors that are made by hundreds of concerns in a multitude of places and under all sorts of conditions, the Evans "Almetl" Doors are built in one central factory, and constantly supervised by the Underwriters' Laboratories Inspectors. Modern high-powered machinery and the most skillful labor obtainable is employed to produce absolute uniformity of construction.

It is claimed that standard tin-clad fire doors must contain at least 10% of moisture in their wood core to be unaffected by dry rot, but it is to be further noted that when the wood core contains more than 10% of moisture the intense heat from a fire will generate gases that can exert sufficient pressure on the seams or joints of the tin to burst them apart, whereas the "Almetl" Doors are so well and strongly made that they should last indefinitely and without any repairs.

Our doors will eventually pay for themselves in the insurance reduction allowed for their installation, and the practical absence of any maintenance charges. They are unquestionably the latest and very best building opening coverings on the market, and afford a maximum degree of protection against both fire and accident. **They also cost less to install than the standard tin-clad doors.**

The Evans "Almetl" Fire Shutters have received the highest approvals from the Underwriters' Laboratories, Chicago, and from the Factory Mutual Laboratories, Boston, and **wherever Fire Shutters** are needed you can unhesitatingly specify them as suitable for the most exacting conditions.

Please note carefully that approval by the Underwriters' Laboratories covers **Stock Insurance** only, whereas we **also** have **Mutual Insurance** approval through the Factory Mutual Laboratories of Boston.

In addition to our approvals from the Chicago and Boston Laboratories, we have over two hundred approvals from prominent officials directly interested in fire protection and prevention affairs, thus constituting a far greater number and a better class of approvals than extended to the manufacturers of any other fire doors on the market.

SPECIFICATIONS

We suggest that you adopt the following specifications, which are similar to those agreed upon by the Pennsylvania Railroad Co., and intended for early adoption by the United States Government.

"Furnish and erect all Fire Doors, and/or Fire Shutters, same to be of the Merchant & Evans make or approved equal, "Almetl" type, and will be automatic self-closing.

"The Doors will be made of two thicknesses of No. 24 gauge corrugated galvanized steel, interlined with 1/16 inch asbestos, in a rigid frame of continuous 3/16 x 2½ inch bar steel, bound in a No. 22 gauge galvanized cover. Proper provision to be made for expansion and contraction without distorting the frame, and where necessary on account of size, the Doors must have intermediate braces. All Doors are to be equipped with substantial approved Hardware, and each Door shall have the Underwriters' Label attached, and also that of the manufacturer."

GENERAL DESCRIPTION

EVANS "ALMETL" FIRE DOORS

(PAT. PENDING)

Note the construction as shown by adjoining illustration; a **double** panel of heavy corrugated galvanized steel, lined with the best grade of sheet asbestos and bound in a rigid, continuous frame of 3/16" x 2½" bar steel.

This frame is reinforced on all edges by an **extra heavy** binder of galvanized steel, thus forming a box for the panel and preventing the damage that always occurs to fire doors of other types.

There is ample provision for expansion and contraction so that any distortion or warping of the door is impossible. The construction provides a series of regular air spaces, properly insulated and covering the entire area of the door. This reduces radiation of heat to a minimum.

The cross-laid corrugated sheets, rigidly attached to the reinforced frame, makes the Evans "Almetl" Door by far the best and strongest on the market; while the absence of any wood core makes it considerably lighter in weight than the standard three-ply tin-clad fire door.

The Evans "Almetl" Fire Door is of attractive appearance, and when painted to harmonize with its surroundings it is a far better looking door than any other type that could be used for the same purpose and under like conditions. There is nothing to bulge and become unsightly, as with tin-clad wooden doors.

It is also very durable and does not require repairs even when installed in large warehouses where there is constant hauling of trucks through openings or doorways. On the other hand, the accidental impact of trucks against tin-clad doors has always resulted in damage to the thin tin covering of the wood core doors and frequently results in punctures that must be immediately repaired if the door is to act as an efficient fire stop.

Under actual tests our Evans "Almetl" Fire Door has successfully withstood the intense heat of a fire of 2000 degrees Fahrenheit.

FACTS ABOUT EVANS "ALMETL" FIRE DOORS

1. Evans "Almetl" Fire Doors average in weight not more than five pounds per square foot and therefore weigh much less than standard three-ply wood core tin-clad fire doors.

2. There are no maintenance charges to be considered, as they contain no wood or other material subject to deterioration.

3. The structural details are always in full view.

4. They are designed to withstand intense heat for long periods of time, and yet radiate it to only a slight degree.

5. The rigid construction offers maximum resistance to any sudden lowering of temperature, or impact force from application of high pressure fire streams.

6. The Evans "Almetl" Fire Doors are of more attractive appearance than tin-clad fire doors and positively much more durable.

7. The improved design of the "Almetl" Door has reduced the radiation of heat and passage of flames to a minimum.

8. Evans "Almetl" Fire Doors can be used with any style of Underwriters' Approved Fire Door Hardware, and with any type of operating device used for solid panel freight or pier shed doors. It is necessary, however, that we furnish a few special fixtures with all our doors, owing to their original and improved design.

9. In addition to the numerous air passages formed by the cross-laid corrugated steel panels, there is a lining between these panels of asbestos roll board, extending the full size of the door.

10. The heavy reinforcing steel binder on the edges prevents damage to frame from trucking.

11. Evans "Almetl" Fire Doors can be fitted with metal trim to match interior decorative effects.

12. We can readily supply our doors with wired glass panels, or with wicket gates, or recessed at top for mono-rail or overhead trolley track.

Fac-simile of Underwriters' Label placed on Evans "Almetl" Fire Doors

REGULATIONS FOR THE PROTECTION OF OPENINGS IN WALLS AND PARTITIONS AGAINST FIRE

Adopted and promulgated by the

NATIONAL FIRE PROTECTION ASSOCIATION

1917

Some Extracts from Proceedings of Nineteenth Annual Meeting

CLASS A.

Calls for the protection of openings in division wall between separate buildings or sections of buildings and "only such Fire Retardants are included in this class as have been shown by experience and tests to furnish a high degree of fire protection, etc." (EVANS "ALMETL" FIRE DOORS ARE IN CLASS A.)

MASONRY AT WALL OPENINGS:

(A) Walls to be plumb and true, and present smooth masonry surfaces without any wood or combustible trim at openings.

(B) Where Swinging—fire doors shut into a brick rabbet in wall, rabbet to be at least 3 x 4 inches, and to have true sides and angles so that the door will close snugly.

SILLS:

On account of the number of methods specified, inspection departments having jurisdiction should be consulted before the installation of sills.

LINTELS:

Stone or tin-clad, wooden lintels are **not** approved. A brick arch is preferable, but lintels made of steel, cast iron, or reinforced concrete may be used if constructed as specified by the National Fire Protection Association. Where steel lintels are used, sliding fire doors must overlap the brick wall 4 inches above upper edge of steel unless such lintels are fireproofed in a manner satisfactory to the inspection department having jurisdiction.

WALL FRAMES:

Steel wall frames are of particular value where swinging Tin-clad fire doors are mounted flush with the face of the wall, and for mounting **Steel** fire doors. They provide for a tight fitting door, serve to protect the brickwork from injury, furnish a secure fastening for the hardware and are neat in appearance. Where used they should be constructed and installed in accordance with National Fire Association rules.

MEASUREMNTS:

Openings in walls to be carefully measured before the doors are built. Where wall frames are **not** used, the measurements are to be from the edges of the brickwork, irrespective of any steel work in the opening. Where wall frames are employed, the size of the door is determined by the size of the opening in the frame.

Note.—Openings in wall frequently vary from the sizes given on plans. It is important, therefore, that the openings be measured before the doors are built.

NORMALLY CLOSED DOORS:

Are arranged to close by gravity or equipped with an approved door check or device to insure proper closing after the door has been opened.

AUTOMATIC DOORS:

To be operated by **at least one approved** releasing device above the door and close to the ceiling. Where desired the door may also be arranged to close by the operation of an additional releasing device near the top of the door opening.

CARE AND MAINTENANCE:

Fire doors should be ready for instant use at all times. Therefore, it is necessary to keep the surroundings clear of everything that would be likely to obstruct or interfere with their free operation. They should be kept closed and fastened nights, Sundays and Holidays and whenever the openings are not in use. The following notice should be posted at each opening protected by fire doors, preferably stenciled on each side of the door itself "Keep this Fire Door shut." Doors of the sliding pattern should be stenciled on both sides with the words "To Open," and an arrow indicating the direction. Swinging doors should be stenciled, "Turn Knob and Push" (or pull), or "Press down lever and push" (or pull), as the case may be.

PAINTING:

When subject to rapid deterioration as the result of corrosion, tinclad and sheet metal doors to be given at least two good coats of paint which is satisfactory to inspection departments having jurisdiction.

Note.—Doors of this type do not require painting where they are used in clean, dry localities.

APPLICATION:

Sliding doors should overlap sides and top of wall opening 4 inches. Top of door to conform to incline of track, ¾ inch to 1 foot. (See paragraph on Lintels.)

Swinging Door to shut into rabbet in wall, into approved wall frame, or when acceptable to inspection department having jurisdiction, doors may overlap sides and top of wall openings as required for sliding doors—

Vertical doors to overlap sides and top of wall opening 4 inches. (See paragraph on Lintels.)

CLASS B.

Calls for the protection of openings in enclosures to vertical communications through buildings. "These enclosures * * * are of the greatest importance in safeguarding life, are next in importance to fire walls in preventing the spread of fire and require the use of doors that can be reliably operated at exits, and of fire retardants of a high order at all wall openings" * * * (FIRE RETARDANTS FULFILLING THE CLASS A REQUIREMENTS CAN BE EMPLOYED FOR OPENINGS INTO VERTICAL SHAFTS WHERE THE TYPE AND PATTERN ARE SUITABLE.)

MASONRY AT WALL OPENINGS:

Walls to be plumb and true, and present smooth masonry surface without combustible trim at openings

Where swinging * * * fire doors shut into masonry rabbets, rabbets to be at least **2 x 4 inches,** and to have true sides and angles so that door will close snugly into same.

SILLS, LINTELS AND WALL FRAMES:

Any of the flush sills, and any lintels and wall frames specified for Class A openings may be used in shaft openings, but inspection department having jurisdiction should be consulted.

MEASUREMENTS:

Openings in walls to be carefully measured before doors are built and maximum dimensions used in determining overlap of doors. Where wall frames are employed the size of the door is determined by the opening in the frame.

Note.—Openings in walls frequently vary from the sizes given in the plans. It is important, therefore, that the openings be measured before the doors are built. The size and shape of the opening in wall frames is frequently altered by distortion incidental to shipment and erection.

AUTOMATIC DOORS:

Doors at openings to enclosures to vertical communications through buildings to be of the normally closed or automatic types. Doors not to be provided with attachments that will prevent the operation of the closing devices.

CARE AND MAINTENANCE:

(A) Doors should be ready for instant use at all times. Therefore, it is necessary to keep surroundings clear of everything that would be likely to obstruct or interfere with their free operation. They should be kept closed and fastened as much of the time as possible.

(B) Where subject to deterioration from corrosion, doors should be painted at fairly frequent intervals.

(C) Hardware should be examined at frequent intervals, and any parts rendered inoperative should be promptly replaced.

(D) Hinges are especially subject to wear and for this reason should be inspected frequently and kept in repair.

(E) Guides and bearings to be kept well greased to facilitate operation.

(F) Doors of the sliding pattern should be stenciled on the room side with the words "To Open," and an arrow indicating the direction. Swinging doors should be stenciled, "Turn Knob and Push," or "Press Down Lever and Push," as the case may be.

CLASS C.

Calls for the protection of openings in corridor and room partitions. "Partitions used for the subdivision of fire sections of buildings are of very considerable value in safeguarding life and preventing the rapid spread of fire through the buildings. While of lesser importance from the fire protection viewpoint than fire walls and enclosures to vertical communications through buildings, all openings in interior partitions should be provided with effective barriers to the passage of fire." (OBVIOUSLY EVANS "ALMETL" FIRE DOORS HAVING CLASS A APPROVAL WILL MEET ABOVE CONDITIONS.)

THRESHOLDS:

To be made of non-combustible material with upper surface treated to prevent slipping.

LINTELS:

To be of non-combustible material capable of safely sustaining the superimposed loads, or partitions to be so constructed that the frame will not be subjected to material stress.

WALL FRAMES:

(A) To consist of structural or sheet metal channels of sufficient width to lap the sides of the partitions.

(B) To be securely anchored to partition, and where they extend from floor to ceiling, to be securely anchored at top and bottom.

FINISH AT OPENINGS:

The casing and trim at openings to be preferably of non-combustible material.

CLASS D.

Calls for the protection of openings in exterior walls subject to severe fire exposure. The importance of exterior walls as a safeguard to life at time of fire, and in preventing fire from entering and spreading through buildings makes it essential that all openings in such walls subject to severe exposing fires be protected by efficient methods. "Only such fire retardants are included in this class as have been shown by experience and tests to furnish a high degree of fire protection." * * * "Fire retardants fulfilling Class A or Class B requirements can be employed for the protection of openings in exterior walls subject to severe fire exposure where the type and pattern are suitable." (EVANS "ALMETL" FIRE DOORS ARE IN CLASS A AND EVANS "ALMETL" FIRE SHUTTERS ARE IN CLASS D.)

MASONRY AT WALL OPENINGS:

Walls to be plumb and true and present smooth masonry surfaces without combustible trim at openings.

SILLS:

(A) To be of non-combustible material suitable for the service intended, and provided with any grooves, holes or recesses necessary for the proper installation of the fire retardants used to protect the openings.

(B) To be firmly embedded in mortar, and securely bonded or anchored to the masonry.

LINTELS:

To be of non-combustible material and designed for the proper installation of fire retardants used to protect the openings.

Note.—The Lintels specified for openings in fire walls may be used for openings in exterior walls, particularly for door openings.

WALL FRAMES:

For exterior door openings to conform in all essential particulars with the requirements for openings in fire walls or vertical communications through buildings.

MEASUREMENTS:

Same as Class B.

CARE AND MAINTENANCE:

Same as for Class A.

PAINTING:

Consult inspection department having jurisdiction.

CLASS E.

Calls for the protection of openings in exterior walls subject to moderate fire exposure. Openings in exterior walls, not subject to severe exposure, may be efficiently protected by devices which will not safely withstand the high temperatures of severe fire exposures on the exterior of buildings or the temperatures of fires on the interior of buildings. * * * Fire retardants fulfilling Class A, B or D requirements can be employed for the protection of openings in exterior walls not subject to severe fire exposure, where the type and pattern are suitable.

MASONRY AT WALL OPENINGS:

Same as for Class D.

SILLS AND LINTELS:

May be the same as for openings in fire walls where suitable.

WALL FRAMES:

Specified for openings in Class A and B situations may be used for door openings in exterior walls.

MULLIONS:

(A) Bearing mullions to be of masonry or of structural members protected by at least 2 inches of fireproofing material on all sides.

(B) Non-Bearing mullions and horizontal structural dividing members to consist of steel I-beams not smaller than 5 inches, securely fastened to the wall and protected by at least 2 inches of fireproofing material on the flanges and at least 2½ inches next on the web.

CARE AND MAINTENANCE:

Fire retardants at exterior openings to be kept well painted to prevent deterioration, to be kept clear of everything that would be likely to obstruct or interfere with their free operation, and to be frequently tested and maintained in perfect working order.

The 1916 report of the Committee on Protection of Openings in Walls and Partitions (adopted by the National Fire Protection Association) advises:

1st. Fire Doors must be so counterbalanced that they can be easily operated and remain in any position in which they are placed or left by the operator.

2nd. The Automatic closing device must operate automatically by heat and close fire doors left in any position in time to prevent the passage of fire through the door openings even though it starts in close proximity to the doors.

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READY REFERENCE TABLE SHOWING EXACT AREA IN SQUARE FEET OF INCLINE TOP SLIDING FIRE DOORS TO COVER SQUARE TOP OPENINGS

Use this table for openings where width and height are even feet or half feet. (See foot note.)

O—Denotes area of openings and D—area of doors—IN SQUARE FEET.

This table is based on doors overlapping openings four inches on each side and four inches at top, with assumption that Lintels are fireproofed and that there is sufficient clearance at top and on both sides of openings to allow for installation of Standard Type Hardware. The National Fire Protection Association at its twenty-first annual meeting, adopted a resolution that no LABELED fire doors could be used for covering openings exceeding 120 sq. ft. area.

HEIGHT OF OPENINGS

WIDTH	6′	6½′	7′	7½′	8′	8½′	9′	9½′	10′	10½′	11′	11½′	12′
3′—0″	O–18. D–23.64	O–19.50 D–25.47	O–21. D–27.31	O– 22.50 D– 29.	O– 24. D– 30.98	O– 25.50 D– 32.81	O– 27. D– 34.64	O– 28.50 D– 36.51	O– 30. D– 38.31	O– 31.50 D– 40.14	O– 33. D– 41.98	O– 34.50 D –43.81	O– 36. D– 45.64
3′—6″	O–21. D–26.94	O–22.75 D–29.02	O–24.50 D–31.10	O– 26.25 D– 33.19	O– 28. D– 35.27	O– 29.75 D– 37.35	O– 31.50 D– 39.44	O– 33.25 D– 41.52	O– 35. D– 43.60	O– 36.75 D– 45.68	O– 38.50 D– 47.77	O– 40.25 D– 49.85	O– 42. D– 51.94
4′—0″	O–24. D–30.24	O–26. D–32.57	O–28. D–34.90	O– 30. D– 37.24	O– 32. D– 39.57	O– 34. D– 41.91	O– 36. D– 44.24	O– 38. D– 46.57	O– 40. D– 48.91	O– 42. D– 51.24	O– 44. D– 53.57	O– 46. D– 55.91	O– 48. D– 58.24
4′—6″	O–27. D–33.55	O–29.25 D–36.10	O–31.50 D–38.73	O– 33.75 D– 41.31	O– 36. D– 43.89	O– 38.25 D– 46.48	O– 40.50 D– 49.06	O– 42.75 D– 51.74	O– 45. D– 54.23	O– 47.25 D– 56.81	O– 49.50 D– 59.39	O– 51.75 D– 61.98	O– 54. D– 64.56
5′—0″	O–30. D–36.81	O–32.50 D–39.67	O–35. D–42.56	O– 37.50 D– 45.39	O– 40. D– 48.23	O– 42.50 D– 51.06	O– 45. D– 53.89	O– 47.50 D– 56.73	O– 50. D– 59.58	O– 52.50 D– 62.39	O– 55. D– 65.23	O– 57.50 D– 68.	O– 60. D– 70.89
5′—6″	O–33. D–40.24	O–35.75 D–43.32	O–38.50 D–46.41	O– 41.25 D– 49.49	O– 44. D– 52.57	O– 46.75 D– 55.66	O– 49.50 D– 58.74	O– 52.25 D– 61.82	O– 55. D– 64.91	O– 57.75 D– 67.99	O– 60.50 D– 71.07	O– 63.25 D– 74.16	O– 66. D– 77.24
6′—0″	O–36. D–43.61	O–39. D–46.94	O–42. D–50.28	O– 45. D– 53.61	O– 48. D– 56.94	O– 51. D– 60.28	O– 54. D– 63.61	O– 57. D– 66.94	O– 60. D– 70.28	O– 63. D– 73.61	O– 66. D– 76.94	O– 69. D– 80.28	O– 72. D– 83.61
6′—6″	O–39. D–46.98	O–42.25 D–50.57	O–45.50 D–54.16	O– 48.75 D– 57.74	O– 52. D– 61.33	O– 55.25 D– 64.91	O– 58.50 D– 68.50	O– 61.75 D– 72.08	O– 65. D– 75.66	O– 68.25 D– 79.24	O– 71.50 D– 82.83	O– 74.75 D– 86.41	O– 78. D– 90.
7′—0″	O–42. D–50.40	O–45.50 D–54.23	O–49. D–58.06	O– 52.50 D– 61.90	O– 56. D– 65.73	O– 59.50 D– 69.56	O– 63. D– 73.40	O– 66.50 D– 77.23	O– 70. D– 81.06	O– 73.50 D– 84.90	O– 77. D– 88.83	O– 80.50 D– 92.56	O– 84. D– 96.40
7′—6″	O–45. D–53.80	O–48.75 D–57.79	O–52.50 D–61.97	O– 56.25 D– 66.05	O– 60. D– 70.14	O– 63.75 D– 74.22	O– 67.50 D– 78.31	O– 71.25 D– 82.39	O– 75. D– 86.47	O– 78.75 D– 90.56	O– 82.50 D– 94.64	O– 86.25 D– 98.72	O– 90. D–102.79
8′–0″	O–48. D–57.24	O–52. D–61.57	O–56. D–65.90	O– 60. D– 70.24	O– 64. D– 74.57	O– 68. D– 78.90	O– 72. D– 83.24	O– 76. D– 87.57	O– 80. D– 91.90	O– 84. D– 96.24	O– 88. D–100.57	O– 92. D–104.91	O– 96. D–109.24
8″—6′	O–51. D–60.78	O–55.25 D–65.26	O–59.50 D–69.84	O– 63.75 D– 74.33	O– 68. D– 79.01	O– 72.25 D– 83.59	O– 76.50 D– 88.18	O– 80.75 D– 92.76	O– 85. D– 97.34	O– 89.25 D–101.85	O– 93.50 D–106.51	O– 97.75 D–111.09	O–102. D–115.68
9′—0″	O–54. D–64.14	O–58.50 D–68.97	O–63. D–73.81	O– 67.50 D– 78.84	O– 72. D– 83.47	O– 76.50 D– 88.30	O– 81. D– 93.14	O– 85.50 D– 97.98	O– 90. D–102.81	O– 94.50 D–106.64	O– 99. D–112.48	O–103.50 D–117.31	O–108. D–122.14
9′—6″	O–57. D–67.62	O–61.75 D–72.70	O–66.50 D–77.78	O– 71.25 D– 82.87	O– 76. D– 87.95	O– 80.75 D– 93.04	O– 85.50 D– 98.12	O– 90.25 D–103.21	O– 95. D–108.28	O– 99.75 D–113.37	O–104.50 D–118.46	O–109.25 D–123.54	O–114. D–128.62
10′—0″	O–60. D–71.11	O–65. D–76.44	O–70. D–81.77	O– 75. D– 87.11	O– 80. D– 92.44	O– 85. D– 97.77	O– 90. D–103.11	O– 95. D–108.44	O–100. D–113.77	O–105. D–119.11	O–110. D–124.44	O–115. D–129.77	O–120. D–135.11
10′—6″	O–63. D–74.62	O–68.25 D–80.20	O–73.50 D–85.78	O– 78.75 D– 91.37	O– 84. D– 96.95	O– 89.25 D–102.54	O– 94.50 D–108.13	O– 99.75 D–113.69	O–105. D–119.29	O–110.25 D–124.87	O–115.50 D–130.45	O–120.75 D–136.04	O–126. D–141.62
11′—0″	O–66. D–78.13	O–71.50 D–83.97	O–77. D–89.80	O– 82.50 D– 95.63	O– 88. D–101.47	O– 93.50 D–107.30	O– 99. D–113.13	O–104.50 D–118.97	O–110. D–124.80	O–115.50 D–130.04	O–121. D–136.47	O–126.50 D–142.30	O–132. D–148.13
11′—6″	O–69. D–81.68	O–74.75 D–87.76	O–80.50 D–93.84	O– 86.25 D– 99.93	O– 92. D–106.01	O– 97.75 D–112.09	O–103.50 D–118.18	O–109.25 D–124.26	O–115. D–130.35	O–120.75 D–125.43	O–126.50 D–142.41	O–132.25 D–148.60	O–138. D–154.68
12′—0″	O–72. D–85.22	O–78. D–91.56	O–84. D–97.89	O– 90. D–104.22	O– 96. D–110.56	O–102. D–116.89	O–108. D–123.22	O–114. D–129.56	O–120. D–135.89	O–126. D–142.23	O–132. D–151.09	O–138. D–154.89	O–144. D–161.23

NOTE.—The above table is a ready reference table to ascertain areas of Doors for openings 3 ft. to 12 ft. wide by 6 ft. to 12 ft. high, stepped up every *six inches*. Table on following page furnishes areas for practically *all* sizes of openings, stepped up inch by inch.

TABLE FOR ESTIMATING NET AREA IN SQUARE FEET OF INCLINED TOP SLIDING FIRE DOORS FOR SQUARE TOP OPENINGS. (See Foot Note)

EXPLANATION—Under general heading of DOOR WIDTH is a range of sizes from two feet to thirteen feet inclusive, stepped up by inches. The first column denotes feet as well as inches. The second column is the decimal equivalent to the feet (or feet and inches) shown in the first column. The third column gives the net amount of inches expressed in the first column.

EXAMPLE—If it is desired to know the exact area in square feet of an inclined top sliding fire door to cover a square top OPENING, say 6'0" wide by 8' 0" high, we add 8" to the width of the opening (viz. 4" overlap on each side) and add 4" to the height for an overlap. This gives a measurement of 6'8" wide by 8'4" high.

By referring to the table, we find that 6.667 is the decimal equivalent for 6'8", and that 8.333 is the decimal equivalent for 8'4". On referring back to the width 6'8", and under the heading of ½ RISE, we note that .208 is equivalent to a rise of 5" in a 6'8" width, and adding this .208 to the decimal equivalent of the height, namely 8.333, the result is 8.541. Then multiply 8.541 by 6.667 and the result is 56.94, which will be the exact area in square feet of an inclined top sliding fire door to cover a square top opening 6' wide by 8' high. Practically any size square top opening can be worked out by this rule.

Door Width			½ Rise	Rise	Door Width			½ Rise	Rise	Door Width			½ Rise	Rise	Door Width			½ Rise	Rise
Ft. In.	Feet	Inches	Feet	Inches	Ft. In.	Feet	Inches	Feet	Inches	Ft. In.	Feet	Inches	Feet	Inches	Ft. In.	Feet	Inches	Feet	Inches
2- 0	2.000	24	.062	1½	4–10	4.833	58	.151	3⅝	7- 8	7.667	92	.240	5¾	10- 6	10.500	126.	.328	7⅞
2- 1	2.083	25	.065	1 9/16	4–11	4.917	59	.154	3 11/16	7- 9	7.750	93	.242	5 13/16	10- 7	10.583	127	.330	7 15/16
2- 2	2.167	26	.067	1⅝	5- 0	5.000	60	.156	3¾	7-10	7.833	94	.245	5⅞	10- 8	10.667	128	.333	8
2- 3	2.250	27	.070	1 11/16	5- 1	5.083	61	.159	3 13/16	7-11	7.917	95	.247	5 15/16	10- 9	10.750	129	.335	8 1/16
2- 4	2.333	28	.073	1¾	5- 2	5.167	62	.162	3⅞	8- 0	8.000	96	.250	6	10–10	10.833	130	.338	8⅛
2- 5	2.416	29	.075	1 13/16	5- 3	5.250	63	.164	3 15/16	8- 1	8.083	97	.253	6 1/16	10–11	10.917	131	.340	8 3/16
2- 6	2.500	30	.078	1⅞	5- 4	5.333	64	.167	4	8- 2	8.167	98	.255	6⅛	11- 0	11.000	132	.343	8¼
2- 7	2.583	31	.080	1 15/16	5- 5	5.416	65	.170	4 1/16	8- 3	8.250	99	.258	6 3/16	11- 1	11.083	133	.346	8 5/16
2- 8	2.667	32	.083	2	5- 6	5.500	66	.172	4⅛	8- 4	8.333	100	.260	6¼	11- 2	11.167	134	.349	8⅜
2- 9	2.750	33	.086	2 1/16	5- 7	5.583	67	.175	4 3/16	8- 5	8.416	101	.262	6 5/16	11- 3	11.250	135	.351	8 7/16
2–10	2.833	34	.088	2⅛	5- 8	5.667	68	.177	4¼	8- 6	8.500	102	.265	6⅜	11- 4	11.333	136	.354	8½
2–11	2.917	35	.091	2 3/16	5- 9	5.750	69	.179	4 5/16	8- 7	8.583	103	.267	6 7/16	11- 5	11.416	137	.357	8 9/16
3- 0	3.000	36	.093	2¼	5–10	5.833	70	.182	4⅜	8- 8	8.667	104	.271	6½	11- 6	11.500	138	.359	8⅝
3- 1	3.083	37	.096	2 5/16	5–11	5.917	71	.184	4 7/16	8- 9	8.750	105	.273	6 9/16	11- 7	11.583	139	.361	8 11/16
3- 2	3.167	38	.099	2⅜	6- 0	6.000	72	.187	4½	8–10	8.833	106	.276	6⅝	11- 8	11.667	140	.364	8¾
3- 3	3.250	39	.101	2 7/16	6- 1	6.083	73	.190	4 9/16	8–11	8.917	107	.278	6 11/16	11- 9	11.750	141	.367	8 13/16
3- 4	3.333	40	.104	2½	6- 2	6.167	74	.192	4⅝	9- 0	9.000	108	.281	6¾	11–10	11.833	142	.369	8⅞
3- 5	3.416	41	.106	2 9/16	6- 3	6.250	75	.195	4 11/16	9- 1	9.083	109	.283	6 13/16	11–11	11.917	143	.372	8 15/16
3- 6	3.500	42	.109	2⅝	6- 4	6.333	76	.197	4¾	9- 2	9.167	110	.286	6⅞	12- 0	12.000	144	.375	9
3- 7	3.583	43	.112	2 11/16	6- 5	6.416	77	.200	4 13/16	9- 3	9.250	111	.289	6 15/16	12- 1	12.083	145	.377	9 1/16
3- 8	3.667	44	.114	2¾	6- 6	6.500	78	.203	4⅞	9- 4	9.333	112	.291	7	12- 2	12.167	146	.380	9⅛
3- 9	3.750	45	.117	2 13/16	6- 7	6.583	79	.206	4 15/16	9- 5	9.416	113	.293	7 1/16	12- 3	12.250	147	.383	9 3/16
3–10	3.833	46	.119	2⅞	6- 8	6.667	80	.208	5	9- 6	9.500	114	.296	7⅛	12- 4	12.333	148	.385	9¼
3–11	3.917	47	.122	2 15/16	6- 9	6.750	81	.210	5 1/16	9- 7	9.583	115	.299	7 3/16	12- 5	12.416	149	.387	9 5/16
4- 0	4.000	48	.125	3	6–10	6.833	82	.214	5⅛	9- 8	9.667	116	.302	7¼	12- 6	12.500	150	.390	9⅜
4- 1	4.083	49	.127	3 1/16	6–11	6.917	83	.216	5 3/16	9- 9	9.750	117	.305	7 5/16	12- 7	12.583	151	.393	9 7/16
4- 2	4.167	50	.131	3⅛	7- 0	7.000	84	.219	5¼	9–10	9.833	118	.307	7⅜	12- 8	12.667	152	.395	9½
4- 3	4.250	51	.133	3 3/16	7- 1	7.083	85	.220	5 5/16	9–11	9.917	119	.310	7 7/16	12- 9	12.750	153	.398	9 9/16
4- 4	4.333	52	.135	3¼	7- 2	7.167	86	.224	5⅜	10- 0	10.000	120	.312	7½	12–10	12.833	154	.401	9⅝
4- 5	4.416	53	.138	3 5/16	7- 3	7.250	87	.226	5 7/16	10- 1	10.083	121	.315	7 9/16	12–11	12.917	155	.403	9 11/16
4- 6	4.500	54	.141	3⅜	7- 4	7.333	88	.229	5½	10- 2	10.167	122	.318	7⅝	13- 0	13.000	156	.406	9¾
4- 7	4.583	55	.143	3 7/16	7- 5	7.416	89	.232	5 9/16	10- 3	10.250	123	.320	7 11/16					
4- 8	4.667	56	.146	3½	7- 6	7.500	90	.234	5⅝	10- 4	10.333	124	.322	7¾					
4- 9	4.750	57	.149	3 9/16	7- 7	7.583	91	.237	5 11/16	10- 5	10.416	125	.325	7 13/16					

NOTE.—This table can be used for dimensions not shown on page 36, and while this table also includes the sizes shown on the preceeding page, yet where opening dimensions terminate in even feet or half feet, you can instantly get the total square feet involved by referring to page 36 instead of using the method of calculation indicated on this page.

Necessary data to be furnished us when you ask for quotations or send orders for Evans "Almetl" Fire Doors

A. The precise style of door, whether sliding or swinging, etc., must be clearly mentioned; also whether top of door is to be square, inclined or arched.

B. It must be distinctly stated whether doors are single or double and whether wanted for both sides of an opening or one side only. If both sides, mention whether the fixtures can be bolted together.

C. The direction of motion of doors, whether right or left, must be distinctly given, **as doors are not reversible.**

D. A precise statement as to the sort of hardware desired, whether wrought or malleable, is necessary.

E. Each inquiry or order must state:

1. Number of openings, and number of doors required for same.
2. Whether openings are square or arched top.
3. Height of center of opening.
4. Height of side of opening.
5. Width of opening.
6. Thickness of walls.
7. Distance from highest point of opening to nearest obstruction overhead. **Note.** Square top openings should have 14″ headroom at edge of opening, and ¾ of an inch more for each foot of track beyond that point. Arched top openings should have 14″ headroom above top of the arch, and ¾ of an inch more for each foot the track extends beyond the center. Always state nature and location of any obstructions above top of opening, or on side walls.
8. Distance from edge of openings to wall at right angles, if any, to provide sufficient space for wall binders.

F. Mention kind of sill, and if raised, the height of same from the floor.

G. For swinging doors, state if they are to overlap the openings. If not, and they are to fit flush with the wall, always mention whether the opening (or frame, if used) is of the rabbetted type, and give depth and width of rabbet.

H. If channel irons or steel door frames are used, state width of same on wall side.

I. If doors are to be enclosed in pockets, 4″ clearance room must be provided for sliding of doors and hardware.

J. State whether walls are concrete, brick, or stone, etc.

K. If **unapproved** steel lintels are employed, state height of same, as doors must overlap masonry work 4″ above upper edge of lintel.

L. If hinge pins or eye blocks are already set for swinging doors, give diameter of same; also distance from center of pin to face of wall, and distance from center of pin to edge of opening.

M. For openings having scant headroom, either straight or drop bracket type hardware must be used, at special prices.

N. For vertical sliding doors, furnish necessary data from above information and give particular consideration to headroom above opening, and wall room on each side of opening.

O. A precise statement as to what insurance jurisdiction is concerned (whether Stock or Mutual and name) must be marked on each order.

Fac-simile of Factory Label used on all Evans "Almetl" Fire Doors—your protection on dependable manufacture

Erection of Evans "Almetl" Single Sliding Fire Doors

With M. & E.—R. W. Flat Track Hardware

Size of Doors. Doors to overlap sides and top of wall opening 4". Where steel lintels are used, doors to overlap masonry 4" above upper edge of steel, unless such lintels are fireproofed in a manner satisfactory to the Inspection Department having jurisdiction. Tops of doors are made with an incline of three-fourths of one inch to the foot.

Track. To be twenty-one inches longer than twice the width of the opening. Place door in closed position over opening (i. e., with 4" overlap on each side) with 3/8" blocking between bottom of door and sill and with 3/4" strip on top edge of door. Lay track on this strip with center of first bolt hole 6 1/4" from edge of opening and mark all bolt holes.

Remove track, drill bolt holes through wall, then bolt track in position with 3/4" bolts, using bracket between wall and track at each bolt. When doors are used on both sides of opening, place tracks directly opposite and bolt together. End of track with bolt holes closest together should be placed over opening.

Bumpers. Attach front bumper with first bolt hole in front end of track and back bumper with last bolt hole in back end of track. 4" cast iron washers are provided for all wall bolts.

Hangers. With door in closed position over opening, place hangers on track directly in front of angle iron track binder (riveted to top edge of door) and to one side of the wall bolt nearest to edge of opening and mark bolt holes on door so same will be located in valley of vertical corrugation on face of door—thus allowing the pendant of hanger to span to the crest of the two adjacent vertical corrugations. Drill or punch holes and attach hangers to door, using reinforcing plate (provided) on wall side of door with 1/2" bolts, use jamb nut in valley of vertical corrugation directly under pendant of hanger. Doors for openings in excess of 6 feet in width require three hangers.

Binders. With door against front bumper, place binders against front edge of door, mark and drill the holes exactly as done for the track bolts. The top binder is placed 24" from the top of door, and the lower binder is placed 18" above the sill. Attach with 3/4" machine bolts.

Guide Roller. Chip out wall and sill so that frame of guide roll will set flush with face of wall and sill; drill bolt holes and bolt to wall with 3/4" machine bolt passing through eye bolt set in from side of opening. When door is closed, adjust roller against wedge at end of roller strip so that door will be held to, but not tightly against the wall.

Rear Binder Hook. Drill a 13/16" hole through the wall (center of hole to be 4" from rear edge of wall opening). Chip enough material from wall to leave the back of the rear binder hook flush with the face of the wall, as per illustration on page 9; then pass 3/4" machine bolt through the wall with hook in such position that it will engage the center of the pocket (which is attached to the back edge of the door) when the door is in closed position.

Doors for Openings up to 10 Feet in Height are provided with one rear binder hook and for openings exceeding 10 feet in height are provided with two rear binder hooks—in addition to the front binders and stay roller. When openings are 11 feet or more in height three front binders are required, locating the top and bottom binders about 18" from the corners of the door and the third binder half way between the top and bottom binders. The rear binder hooks are equally distributed between the top and bottom of door and attached by 3/4" machine bolts extending clear through the wall.

Attach link bracket, wedge, roller strip, handles, cord, weights, trigger, pulleys, etc., as illustrated on page 9 after door is hung.

Caution. Do not attach track to wood, even when wood is tin-covered, nor use wood or lead plugs in the wall to support wall bolts. If holes are drilled too largge, place the bolt and wedge in with iron to hold tight. Fill the hole flush with two to one sand and cement mortar.

*Our "Almetl" Doors are provided with an angle iron track binder, which engages the track and holds door in position in case the hanger wheels are lifted from the track by expansion.

Erection of Evans "Almetl" Single Sliding Fire Doors

With M. & E.—A. P. Round Track Hardware

Size of Doors. Doors to overlap sides and top of wall opening 4 inches. Where steel lintels are used, doors to overlap masonry 4 inches above upper edge of steel unless such lintels are fireproofed in a manner satisfactory to the Inspection Department having jurisdiction. Tops of doors are made with an incline of three-fourths of one inch to the foot.

Track.* To be twelve inches longer than twice the width of the opening. Center track supports should be located at the sides of the hangers instead of directly in back of the hangers when doors are in closed position (see illustration on page 9) to allow for expansion of door without binding. The space between the top of the door and the track to be at least 1" to allow for the upward expansion of the door when heated.

Note. Our "Almetl" Door hangers are provided with a lug or hook, which engages the track and holds the door in position in case the hanger wheels are lifted from the track by expansion.

Attaching Hangers. Hangers to be bolted securely to door with ½" bolts—using jamb nut in valley of vertical corrugation and directly under pendant of hanger, before being placed in position against opening, using triangular reinforcing plates (provided) on wall side of door and center of bottom bolt hole of hanger should be about 10 inches from edge of door; the under side of lug on back of hanger should rest on top edge of door. Doors for openings in excess of 6 feet in width require three hangers.

Mounting Track. After hangers have been attached to door, place door in proper position over opening (i. e., with 4" overlap on each side) with ⅜" blocking between sill and bottom of door. Place center supports or brackets in track. Put track in exact position in hangers over door. Block track up against top wheels of hangers and mark position of center support bolt holes. Drill for ¾" bolts. When tracks for doors on each side of the wall are bolted together with a single set of bolts through the wall, care should be taken to mark the holes so that they will be exactly opposite and the drilling should be done from both sides. ¾" machine bolts are used for track, front binders, rear binder and stay roller. All wall bolts extend entirely through the wall. Expansion bolts are not approved. 4" cast iron washers are provided for all wall bolts.

Attaching Binders. Before removing the door, place the front binders in contact with front edge of door, mark and drill the holes exactly as done in the center track supports. The top binder is placed 24" from the top of the door, and the lower binder about 18" above the sill.

Rear Binder Hook. Drill a 13/16" hole through the wall (center of hole to be 4" from rear edge of wall opening). Chip enough material from the wall to leave the back of the rear binder hook flush with face of wall, as per illustration on page 9, then pass bolt through wall with hook in such position that it will engage the center of the pocket (which is attached to the back edge of the door) when the door is in closed position.

Doors for openings up to 10 feet in height are provided with one rear binder hook and for openings exceeding 10 feet in height, are provided with two rear binder hooks—in addition to the front binders and stay roll. When openings are 11 feet or more in height three front binders are required, locating the top and bottom binders about 18 inches from the corners of the door and the third binder half way between the top and bottom binder. The rear binder hooks are equally distributed between top and bottom of door and attached by ¾" bolts extending clear through the wall.

Stay Roller. Chip out brickwork carefully for guide or stay roller so that it will be flush with wall and the sill. Use only ¾" bolts—passing same through eye bolt which is set in from side of opening. When door is closed, adjust roller against wedge at the end of the roller strip so that the door is held to, but not tightly against the wall.

After having set the stay roller and rear binder hook in the wall, place the door again in position with the ⅜" strip underneath, place track in the hangers and securely bolt to wall. Thin washers or plates (1/16" to ⅛" in thickness) between wall and brackets will often make up for slight unevenness in the wall so that the track will be perfectly straight; then remove strip under door, thus allowing the weight of the door to come on the hangers.

Attach link bracket, wedge, roller strip, handles, cord, weights, trigger, cable, etc., as illustrated on page 9, after door is hung.

Caution. Do not attach track to wood, even when wood is tin-covered, nor use wood or lead plugs in the wall to support wall bolts. If holes are drilled too large, place the bolt and wedge in with iron to hold tight. Fill the hole flush with 2 to 1 sand cement mortar.

Wall. Should the wall be very rough and uneven so that the thin plates or washers are not sufficient, the surface will have to be chipped.

*Tracks are usually shipped from stock lengths which necessitates cutting the end from same to obtain the exact length required.

Wall Bolts Required for Erecting Evans "Almetl" Fire Doors of Single Sliding Type when M. & E.—R. W. Flat Track Hardware is used

Flat Track Hardware							Round Track Hardware						
Total Number of Bolts	Track Bolts: Intermediate	Track Bolts: End	Binder Bolts	Guide Roller Bolts	Rear Binder Bolts	Size of Opening	Total Number of Bolts	Track Bolts: Front	Track Bolts: Intermediate	Track Bolts: Rear	Binder Bolts	Guide Roller Bolts	Rear Binder Bolts
11	3	2	4	1	1	3'	12	1	4	1	4	1	1
11	3	2	4	1	1	3' 3"	13	1	5	1	4	1	1
11	3	2	4	1	1	3' 6"	13	1	5	1	4	1	1
11	3	2	4	1	1	3' 9"	13	1	5	1	5	1	1
11	3	2	4	1	1	4'	13	1	5	1	4	1	1
11	3	2	4	1	1	4' 3"	13	1	5	1	4	1	1
11	3	2	4	1	1	4' 6"	13	1	5	1	4	1	1
12	4	2	4	1	1	4' 9"	13	1	5	1	4	1	1
12	4	2	4	1	1	5'	14	1	6	1	4	1	1
13	5	2	4	1	1	5' 3"	14	1	6	1	4	1	1
13	5	2	4	1	1	5' 6"	14	1	6	1	4	1	1
13	5	2	4	1	1	5' 9"	14	1	6	1	4	1	1
13	5	2	4	1	1	6'	14	1	6	1	4	1	1
13	5	2	4	1	1	6' 3"	16	1	8	1	4	1	1
13	5	2	4	1	1	6' 6"	16	1	8	1	4	1	1
13	5	2	4	1	1	6' 9"	16	1	8	1	4	1	1
13	5	2	4	1	1	7'	16	1	8	1	4	1	1
13	5	2	4	1	1	7' 3"	17	1	9	1	4	1	1
13	5	2	4	1	1	7' 6"	17	1	9	1	4	1	1
15	7	2	4	1	1	7' 9"	17	1	9	1	4	1	1
15	7	2	4	1	1	8'	17	1	9	1	4	1	1
15	7	2	4	1	1	8' 3"	17	1	9	1	4	1	1
15	7	2	4	1	1	8' 6"	17	1	9	1	4	1	1
16	8	2	4	1	1	8' 9"	17	1	9	1	4	1	1
16	8	2	4	1	1	9'	17	1	9	1	4	1	1

Up to 11-Foot Opening Same as 9-Foot Opening

Openings 9 Feet 3 Inches to 11 Feet Require 10 Bolts for Intermediate Track Brackets.

For Fixtures on One Side of Wall. Estimate two end track bolts 4 inches longer than thickness of wall and intermediate track bolts 4 inches longer than thickness of wall; binder bolts thickness of wall plus 2 inches and guide roller bolt, thickness of wall plus 1 inch.

For Fixtures on Both Sides of Wall.—Estimate as follows: For track, two end bolts 6 inches longer than thickness of wall and intermediate bolts 5 inches longer than thickness of wall. For binders, all bolts 2 inches longer than thickness of wall. For guide roller bolts same length as thickness of wall, less 1 inch.

For Hardware Used on One Side of Wall.—Front track bolt should be 6 inches longer than thickness of wall; No. 601 only, 5 inches. Rear track bolt 7 inches longer than thickness of wall; No. 601 only, 6 inches. Intermediate track bolts and binder bolts 2 inches longer than thickness of wall. Guide roller bolt 1 inch longer than thickness of wall.

When Hardware is Used on Both Sides of Wall.—The front track bolt should be 9 inches longer than thickness of wall; No. 601 only, 8 inches. Rear track bolt 12 inches longer than thickness of wall; No. 601 only, 11 inches. Intermediate track bolts and binder bolts 2 inches longer than thickness of wall. Guide roller bolt same length, thickness of wall, less 1 inch.

Wall Bolts Required for Erecting Evans "Almetl" Fire Doors of Single Sliding Type when M. & E.—A.-P. Round Track Hardware is used

	Front Bumper	Rear Bumper	Track Bracket	Front Binders	Rear Binder	Guide Roller	
Doors one Style of Wall	"W" Plus 4"	"W" Plus 3"	"W" Plus 2"	"W" Plus 4"	"W" Plus 1"	"W" Plus 1"	
Doorsboth Sides of Wall	"W" Plus 6"	"W" Plus 3"	"W" Plus 2"	"W" Plus 6"	"W" Minus 1"	"W" Minus 1"	
Width of Opening	Bolts Required	Bolts Required	Bolts Required	Bolts Required	Bolts Required	Bolts Required	Total Required
3' 0"	1	1	3	2	1	1	9
3' 3"	1	1	3	2	1	1	9
3' 6"	1	1	3	2	1	1	9
3' 9"	1	1	4	2	1	1	10
4' 0"	1	1	5	2	1	1	11
4' 3"	1	1	5	2	1	1	11
4' 6"	1	1	5	2	1	1	11
4' 9"	1	1	5	2	1	1	11
5' 0"	1	1	5	2	1	1	11
5' 3"	1	1	5	2	1	1	11
5' 6"	1	1	5	2	1	1	11
5' 9"	1	1	5	2	1	1	11
6' 0"	1	1	7	2	1	1	13
6' 3"	1	1	7	2	1	1	13
6' 6"	1	1	8	2	1	1	14
6' 9"	1	1	8	2	1	1	14
7' 0"	1	1	8	2	1	1	14
7' 3"	1	1	8	2	1	1	14
7' 6"	1	1	8	2	1	1	14
7' 9"	1	1	8	2	1	1	14
8' 0"	1	1	8	2	1	1	14
8' 3"	1	1	10	2	1	1	16
8' 6"	1	1	10	2	1	1	16
8' 9"	1	1	10	2	1	1	16
9' 0"	1	1	10	2	1	1	16
9' 3"	1	1	10	2	1	1	16
9' 6"	1	1	10	2	1	1	16
9' 9"	1	1	10	2	1	1	16
10' 0"	1	1	10	2	1	1	16
10' 3" to 12' 0"	1	1	11	2	1	1	17

NOTES

"W" is equal to the thickness of wall in inches.

Style No. 900 requires one more track bracket than listed above.

Style No. 600 requires one more bolt for cord pulley, length of which is "W" plus 8 inches for door on one side of wall and "W" plus 13 inches for doors on both sides of wall.

When necessary to fasten Front Binders with two bolts, length of second one is: "W" plus 3 inches for doors on one side of wall, "W" plus 2 inches for doors on both sides of wall.

When openings exceed 10 feet in height two rear Binder bolts are required.

When openings are 11 feet or more in height three front binders are required.

Special Cord Arrangements

FLAT OR ROUND TRACK

Illustrations of cord arrangements where local board of underwriters having jurisdiction, require fusible link to come in the center of opening.

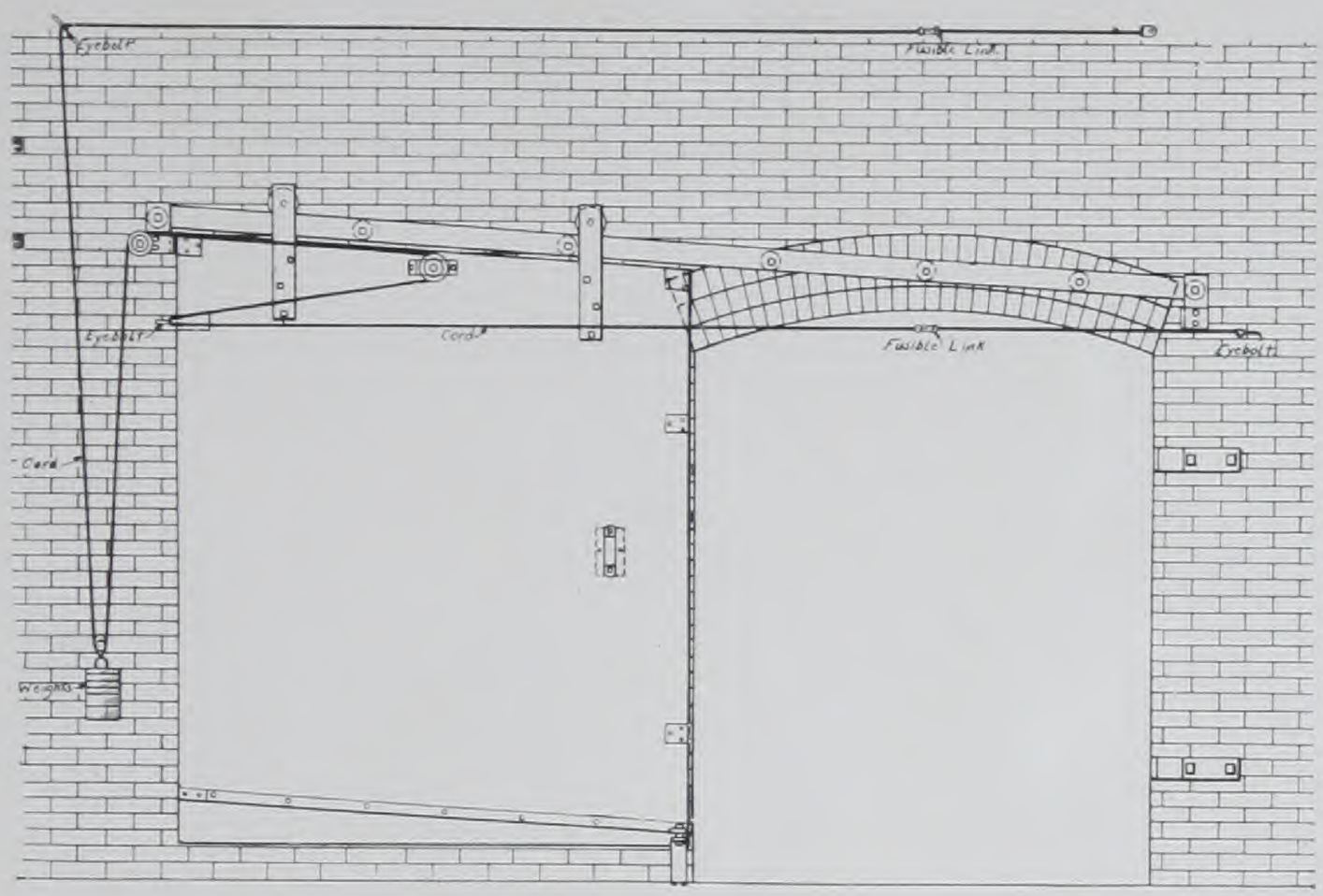


FIG. A—TWO LINK TYPE

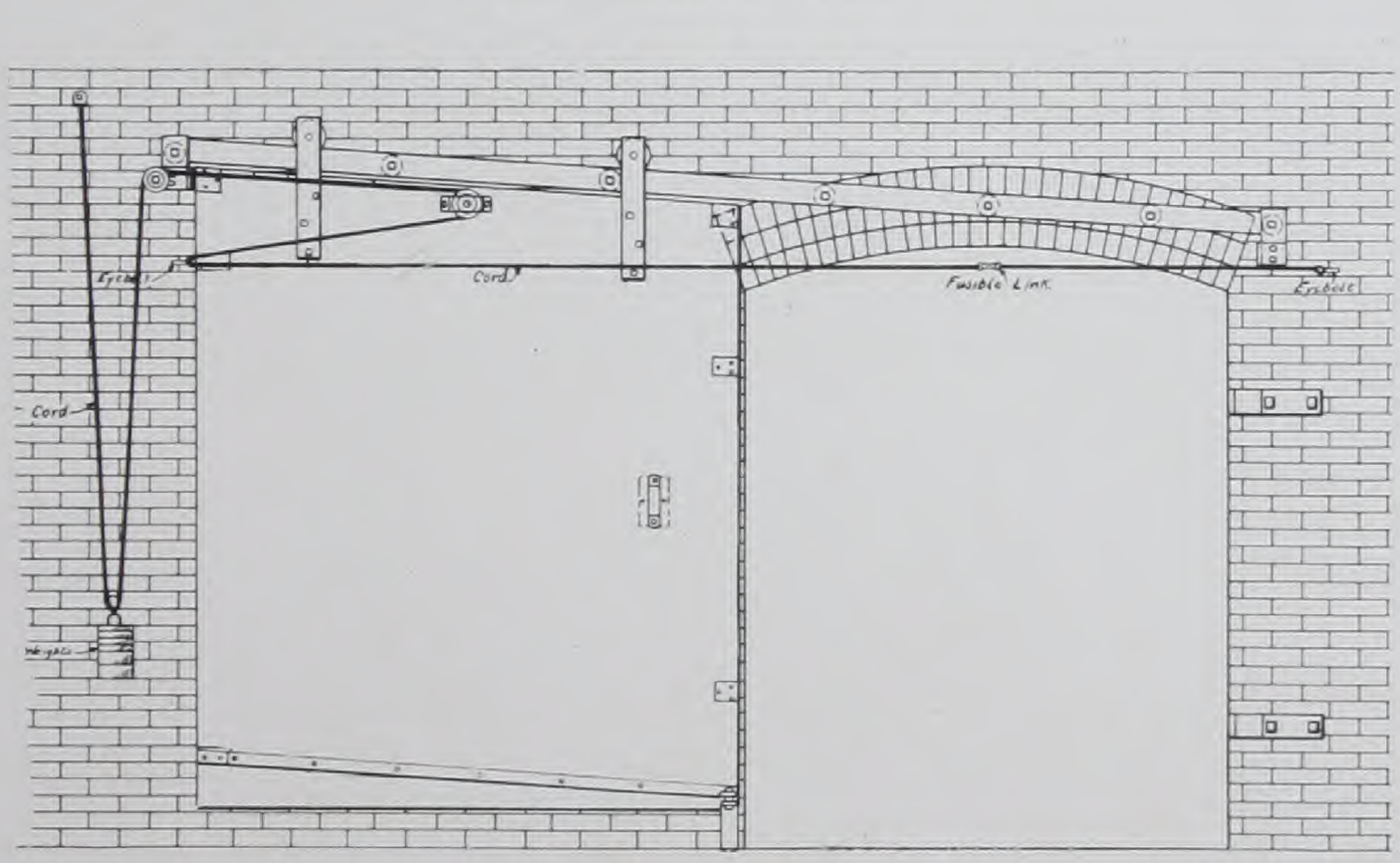


FIG. B—ONE LINK TYPE

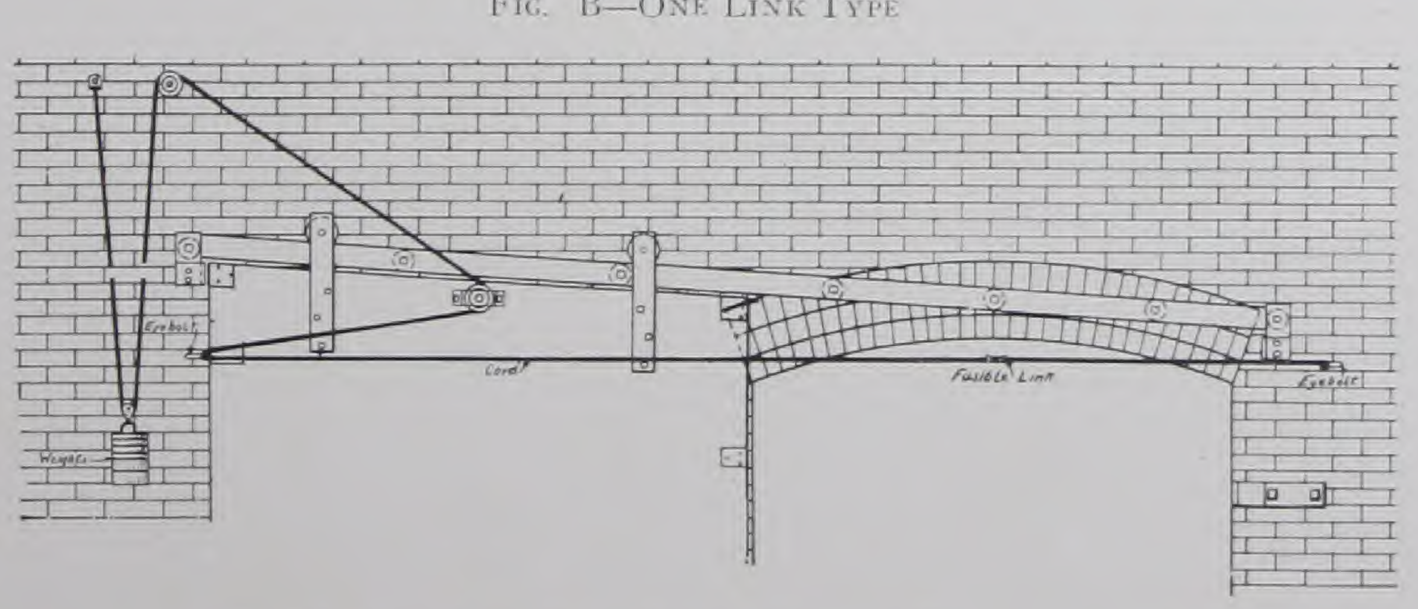
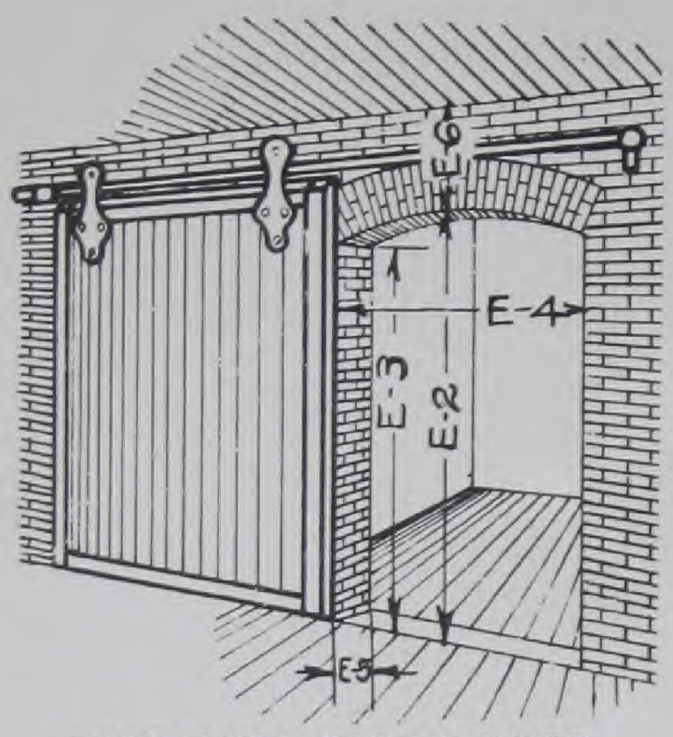
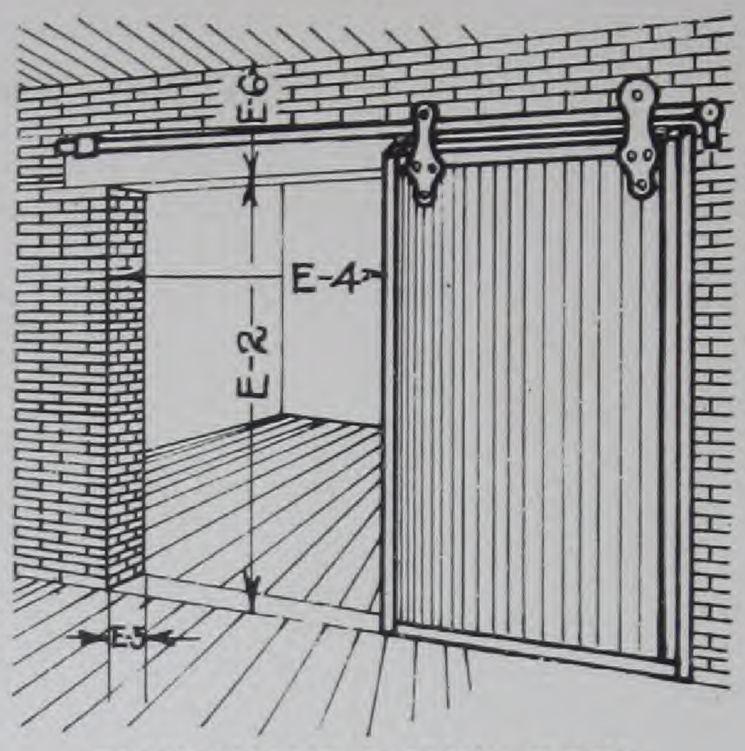


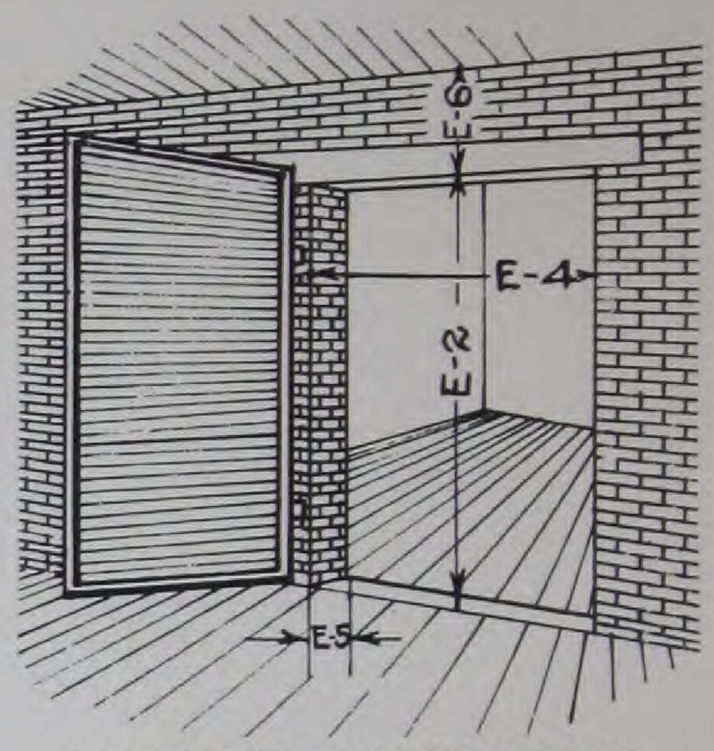
FIG. C—ONE LINK TYPE, WHEN DOOR IS WIDER THAN HIGH



LEFT HAND SLIDING DOOR



RIGHT HAND SLIDING DOOR



LEFT HAND SWINGING DOOR

Types of Evans "Almetl" Fire Doors

Single Sliding, Right-Hand or Left-Hand.
Double Sliding.
Single Swinging, Right-Hand or Left-Hand, Overlap.
Single Swinging, Right-Hand or Left-Hand, Flush (for Rabbetted opening).
Single Swinging, Right-Hand or Left-Hand, Flush (not for Rabbetted opening).
Double Swinging, Overlap.
Double Swinging, Flush (for Rabbetted opening).
Double Swinging, Flush (not for Rabbetted opening).
Vertical Sliding.
Horizontal Lifting.
Wired Glass Panel Doors.
Recessed Doors, for Mono-rail or Overhead Trolley.
Irregular Shaped or Special Doors.

Types of Hardware for Evans "Almetl" Fire Doors

Single Sliding, Round Track (Malleable) or Flat Track (Wrought).
Double Sliding, Round Track (Malleable) or Flat Track (Wrought).
Single Sliding, Level Track (Malleable or Wrought).
Single Sliding, Special Level Drop Bracket Track (Wrought or Reversed Level (Malleable).
Vertical Sliding, Round Track or Flat Track.
Horizontal Lifting, Round Track.
Single Swinging (Wrought or Malleable).
Double Swinging (Wrought or Malleable).
Non-Automatic (Furnished to order).

Sliding Doors, either Single or Double style, are made with Inclined Top, or **straight** (level) top, or **arched** top, as may be required; and Swinging Doors—either single or double—can be made with level top or arched top, as desired. **Arched** tops are special.

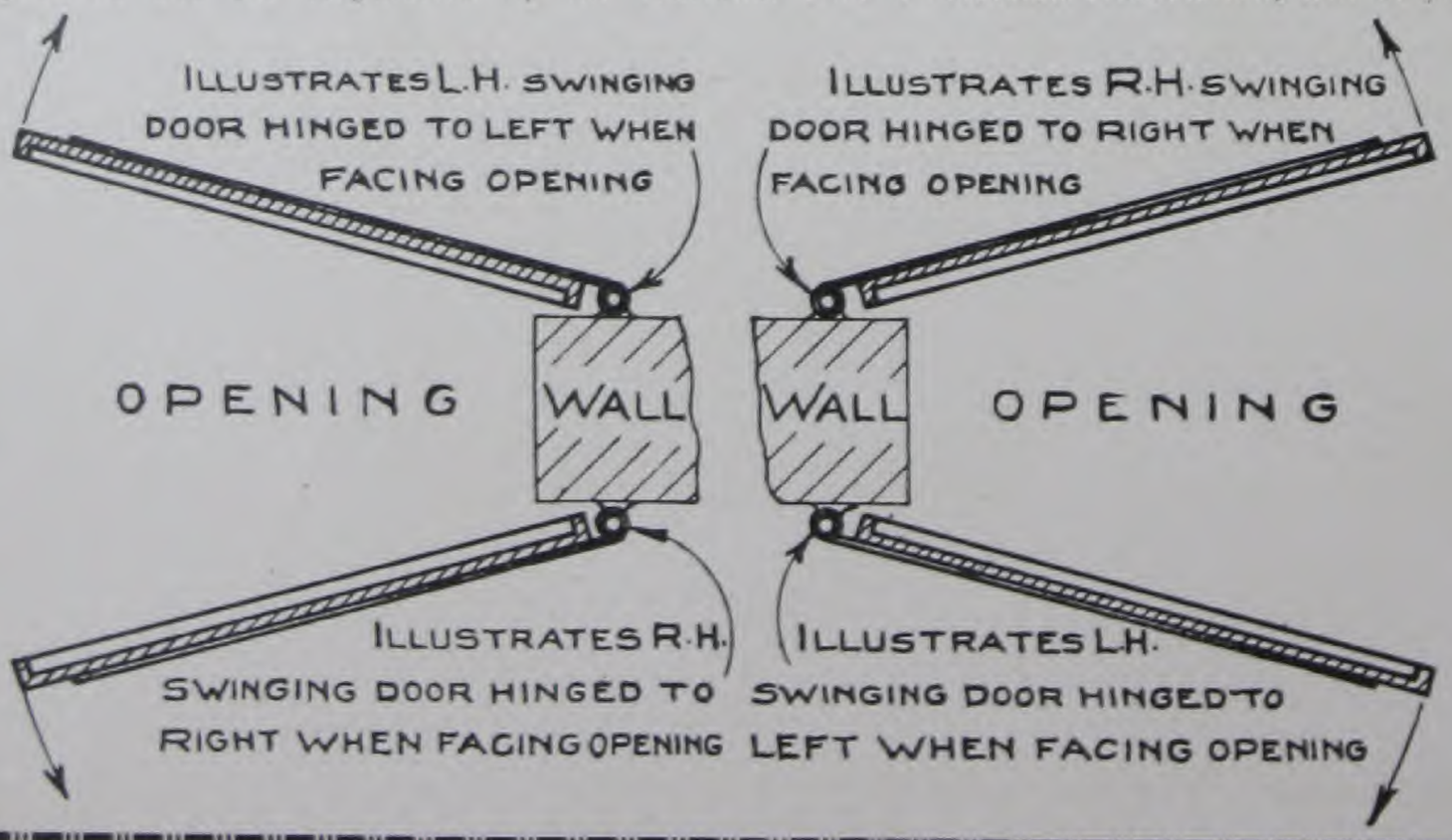
Note.—We furnish **two-link** fixtures, with all Single Sliding or Single Swinging Doors; and **three-link** fixtures with all Double Sliding or Double Swinging Doors, **excepting** Level Track and Special Level Drop Bracket Hardware, with which **one** Fusible Link only is supplied. Horizontal Lifting Hardware is supplied with **four** Fusible Links.

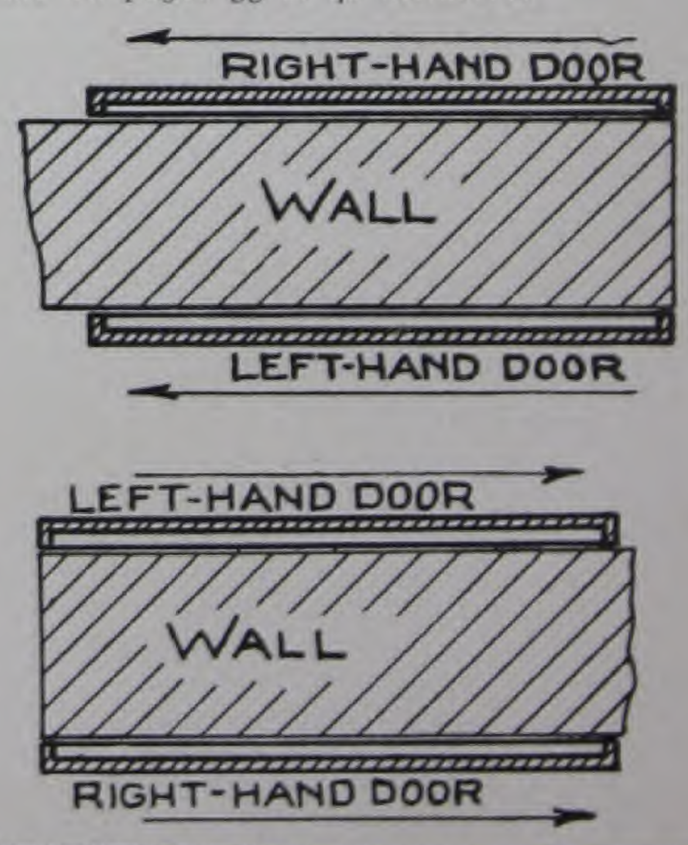
When doors are to be used on both sides of the wall (or opening) **double** sets of hardware will be required, and the price will accordingly be doubled.

Wall Bolts are never included with any hardware, unless specially ordered, and Counter-balance Weights are not included with Vertical Sliding Door Hardware, unless so ordered.

It is sometimes necessary to conceal Fire Doors in a "Pocket" when used to protect Elevator Shafts and Corridors. In such cases our door, after being hung on the fire wall, is screened by a tile or curtain wall, which is held in place by steel bucks. The fire wall opening is framed with channel iron and front edge of door can be covered with art metal to match finish of jamb. Very complete details are needed for this installation and provision must be made for clearance room.

Tables for estimating areas; data on wall bolts required; plans of special cord arrangements for flat track; erection suggestions and the Regulation of the National Fire Protection Association, will be found on pages 33 to 40 inclusive.



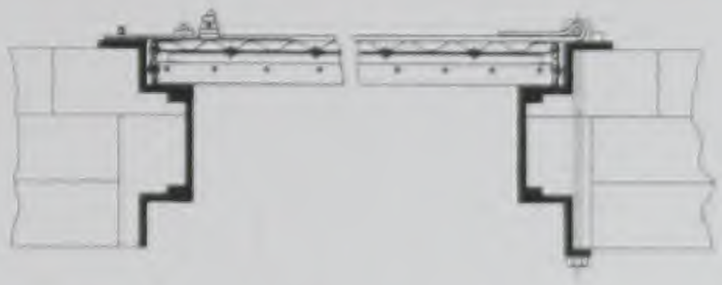


Information About Swinging Doors

There is so much misunderstanding about Swinging Doors that the following information is given to clearly indicate the different styles:

Plan of Overlap Door.

This type of door overlaps the opening 4 inches on each side and 4 inches at top, but if Lintels are not of "approved" type the overlap at top must be 4 inches above the upper edge of the lintel.



Plan of Flush Door, with Angle Iron Frame, Rabbeted Type.

This type of door overlaps the **mean** dimensions of wall openings 4 inches on both sides and at top. When manufacturing the door we make sufficient allowance to prevent it from fitting too tightly.

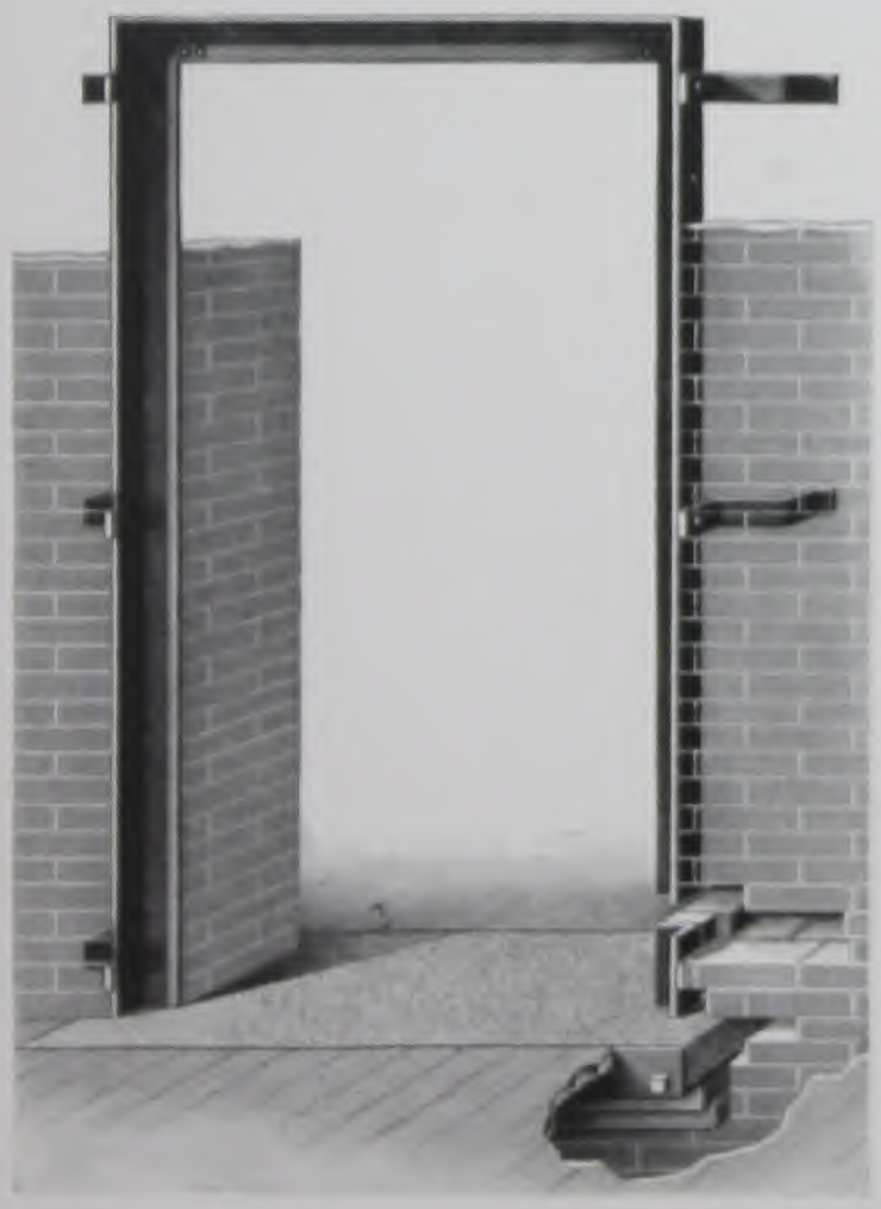
Plan of Flush Door, with Angle Iron Frame for Face of Wall.

This type of door is relatively the same size as opening, but must be measured between faces of Angle Iron Frame (if used). When manufacturing the door we make sufficient allowance to prevent it from fitting too tightly.

Note.—When Flush Doors are wanted of the Double Swinging type, viz.: two (one pair) Hinged or Swinging Doors to cover one side of any given opening, we make sufficient allowance to prevent these doors from fitting too tightly at top and sides, as well as in the center where the doors come together.

The interpretation of **Double** Doors for **both** sides of an opening would mean supplying two pairs of Double Doors, equal to four Single Doors. All Double (or pair) Doors are furnished with an Astragal Strip, running on the outer edge of **one** of the doors, to prevent them from swinging inward and also prevent passage of flames through the opening in case of fire.

Where Swinging Doors shut into a rabbet in a wall, rabbet should be at least 3 inches by 4 inches, and must have true sides and angles so that door will fit snugly. Always advise us dimensions of rabbet.



M. & E. R-W Angle Iron Door Frames

RABBETED TYPE

This frame is made of the kind and size material and according to Standard as designated by National Board of Fire Underwriters. The Rabbeted type is best adapted for building in as wall is erected; or it can easily be made to fit and fasten into an opening already constructed.

Note.—For price and description of Corbeled Sill illustrated in cut-out, see page 8.

The following price list includes angle iron frame with binder ties, complete for one side of wall as shown. Square top opening.

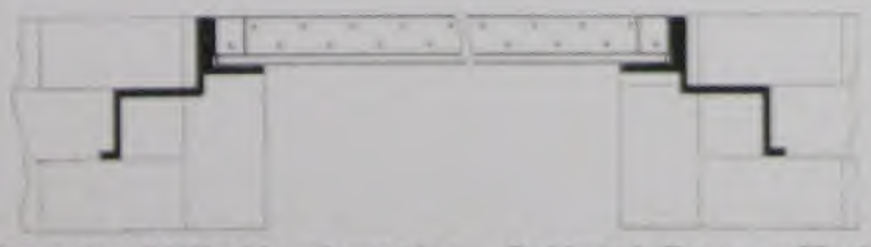
Fixtures are not included in Price List or Weight of Frames. Shipped knocked down.

Size of Openings	For "Almeti" Doors 2" x 2" x ¼" Angle	
	Price List.	Weight per Opening, Lbs.
3' wide x 7' or under in height	$25.12	110
4' wide x 7' or under in height	27.00	116
5' wide x 7' or under in height	28.70	120
6' wide x 7' or under in height	30.38	125
7' wide x 7' or under in height	33.07	130
8' wide x 7' or under in height	33.75	135
For frames higher than 7' add per foot of opening	2.54	12

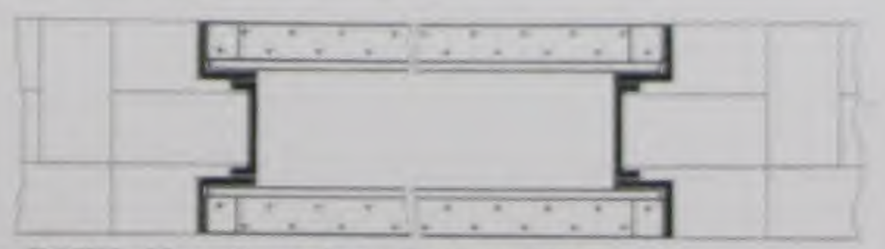
Subject to change without notice.

Note.—Fixtures for rabbeted frame are bolted to wall, not to the frame. Special fixture to bolt to frame can be furnished.

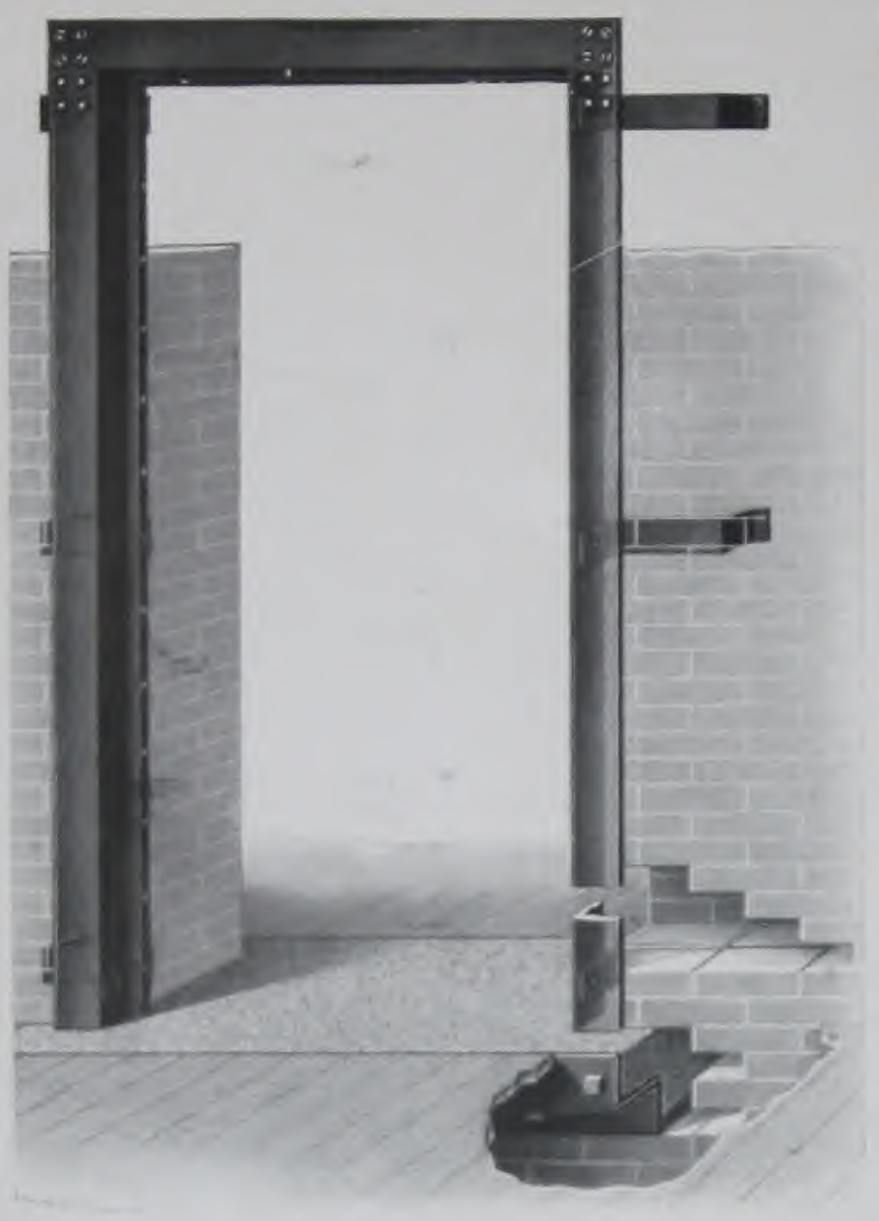
DIRECTIONS FOR ORDERING.—*First.* Send sketch with actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly. *Second.* State whether frame extends into concrete or rests on sill. *Third.* Is frame to be used on one or both sides of wall? *Fourth.* If for single or pairs of doors. *Fifth.* Thickness of wall.



Flush Door for ONE side of opening. Rabbeted Frame.



Flush Doors for BOTH sides of opening. Rabbeted Frame.



M & E, R-W Angle Iron Door Frame

FOR FACE OF THE WALL

This frame is made of the kind and size material and according to Standard as designated by National Board of Fire Underwriters. This type is best adapted for use in old walls, or after the wall has been erected.

Note.—For price and description of Z Bar Sill illustrated in cut-out, see below.

PRICE LIST.

The following price list includes angle iron frame with binder ties, complete for one side of wall as shown, square top opening.

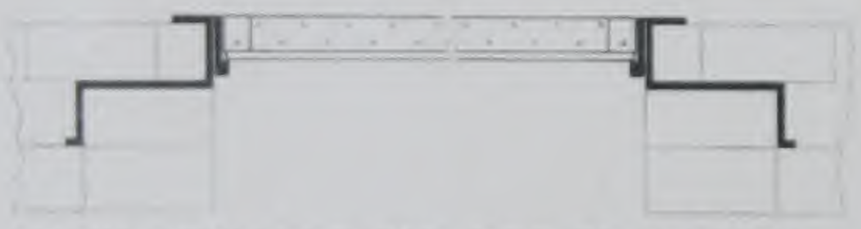
Fixtures are not included in Price List or Weight of Frames. Shipped knocked down.

Size of Door Opening.	For "Almetl" Doors 3½" x 3½" x ¼" Angle Price List.	Weight per Opening, Lbs.
3′ wide x 7′ or under in height	$30.38	125
4′ wide x 7′ or under in height	32.06	131
5′ wide x 7′ or under in height	33.75	137
6′ wide x 7′ or under in height	35.45	143
7′ wide x 7′ or under in height	37.13	149
8′ wide x 7′ or under in height	38.82	154
For frames higher than 7′ add per ft. of opening	2.97	14

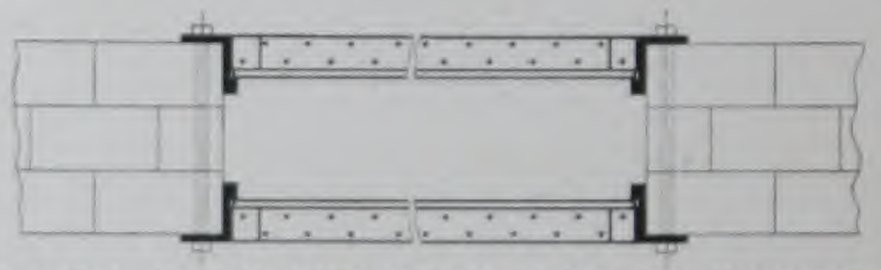
Subject to change without notice.

Note.—When fixtures are ordered complete with frames, holes are drilled for attaching same, without extra charge.

DIRECTIONS FOR ORDERING.—*First.* Send sketch with actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly. *Second.* State whether frame extends into concrete or rests on sill. *Third.* Is frame to be used on one or both sides of wall? *Fourth.* If for single or pairs of doors. *Fifth.* Thickness of wall.



FLUSH DOOR FOR ONE SIDE OF OPENING—NOT RABBETED FRAME



FLUSH DOORS FOR BOTH SIDES OF OPENING —NOT RABBETED FRAME

FIG 1 ANGLES FOR FLUSH SILL

FIG.2 ANGLES AND STEEL PLATE SILL

FIG.3 ANGLES FOR CORBELED SILL

FIG.4 Z BARS FOR SILLS

M & E, R-W Angle Iron Sills

All the sills illustrated are manufactured according to the Standard Specifications and Rules of the National Board of Fire Underwriters.

Sills as shown in Figs. 1 and 3 are a combination of angle irons and concrete. This makes a very substantial threshold, and when the concrete is worn it can be replaced at a very small expense.

Sill as shown in Fig. 2 is the same as Fig. 1 with the addition of a steel plate on top of concrete. Plate should be always assembled to angle irons on jobs, unless otherwise specified.

Sill as shown in Fig. 4 is a combination of Z bars and concrete. The same lasting qualities as mentioned for sills as shown in Figs. 1 and 3.

State thickness of walls so bolts can be sent of the proper length or plate of the proper width, as same are included in the price of the sills.

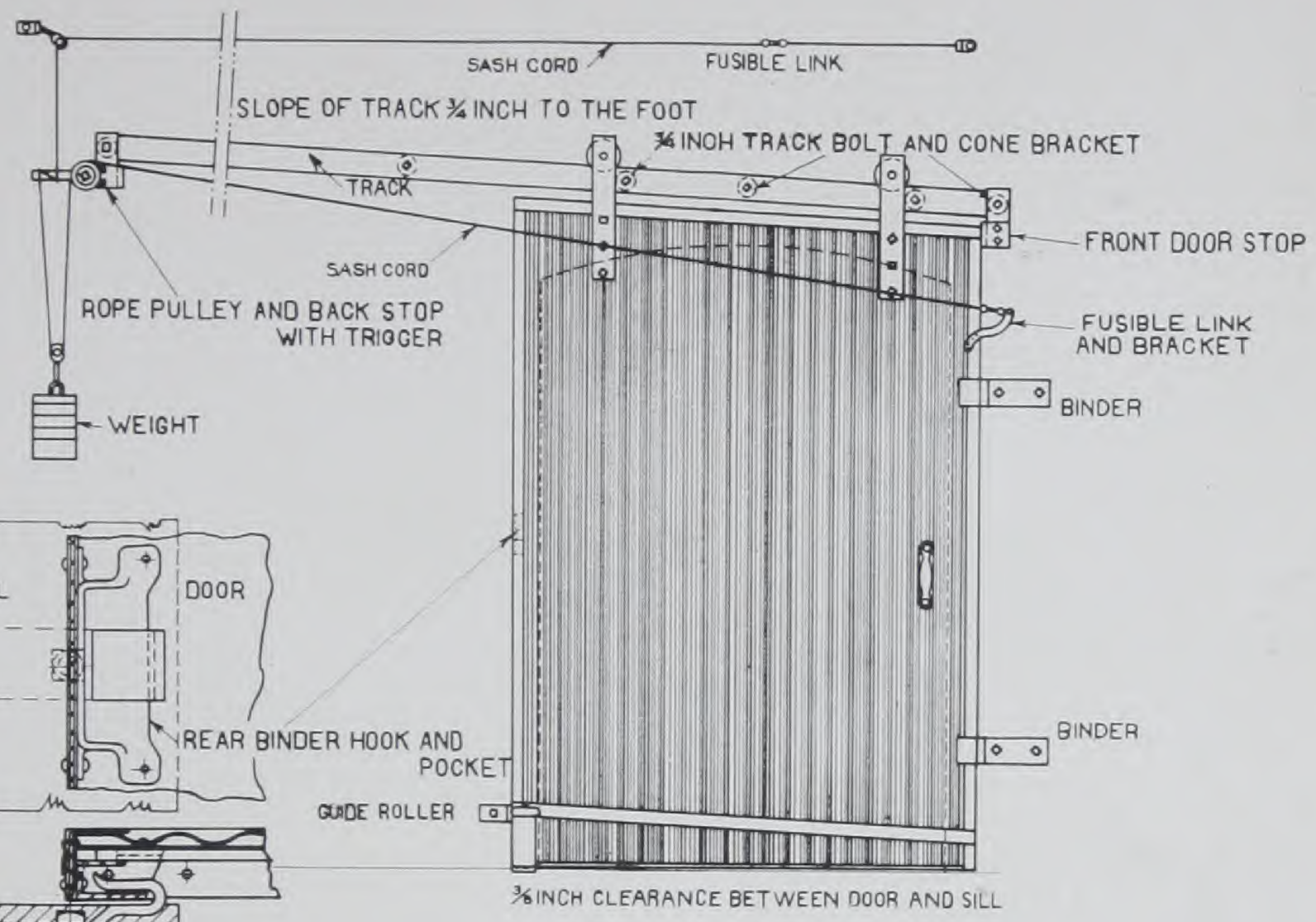
PRICE LIST.

Size of Opening Feet	Fig. 1 3½ x 5 x ⅜ in. angle for flush sill, with bolts	*Fig. 2 3½ x 5 x ⅜ in. angle and ¾ in. Steel Plate for sill, with bolts	Fig. 3 3½ x 6 x ⅜ in. angle for Corbeled sill, with bolts	Fig. 4 4 x 4 x ⅜ in. Z bars for sills, with bolts
3	$13.50	$24.47	$15.20	$24.47
4	16.88	30.38	18.57	30.38
5	20.25	36.29	21.95	36.29
6	23.63	42.20	25.32	42.20
7	27.00	48.09	28.70	48.09
8	30.38	54.00	32.07	54.00

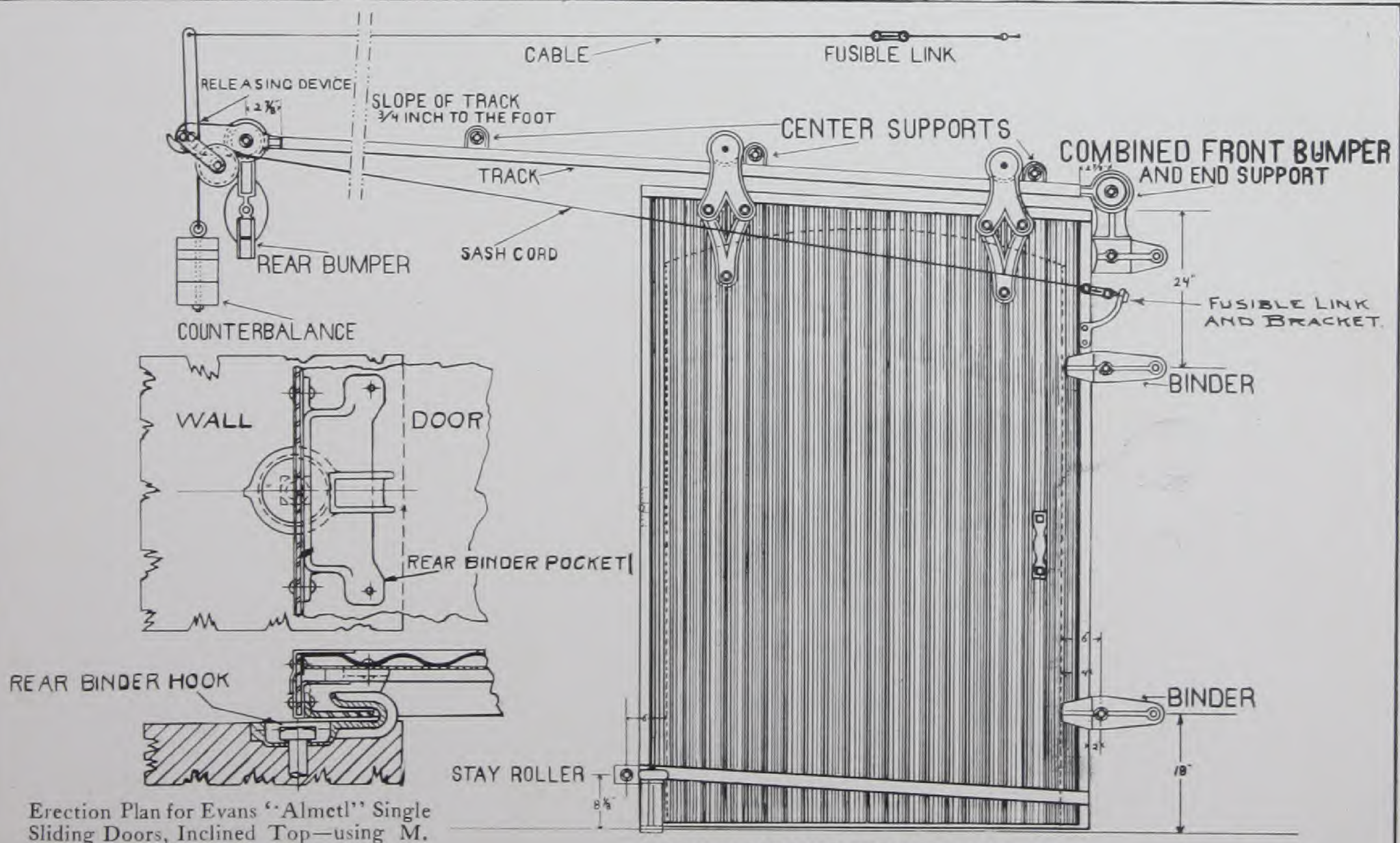
Subject to change without notice.

*Plates included in Price List up to 13-inch wall. Over 13 inches, price will be quoted on application.

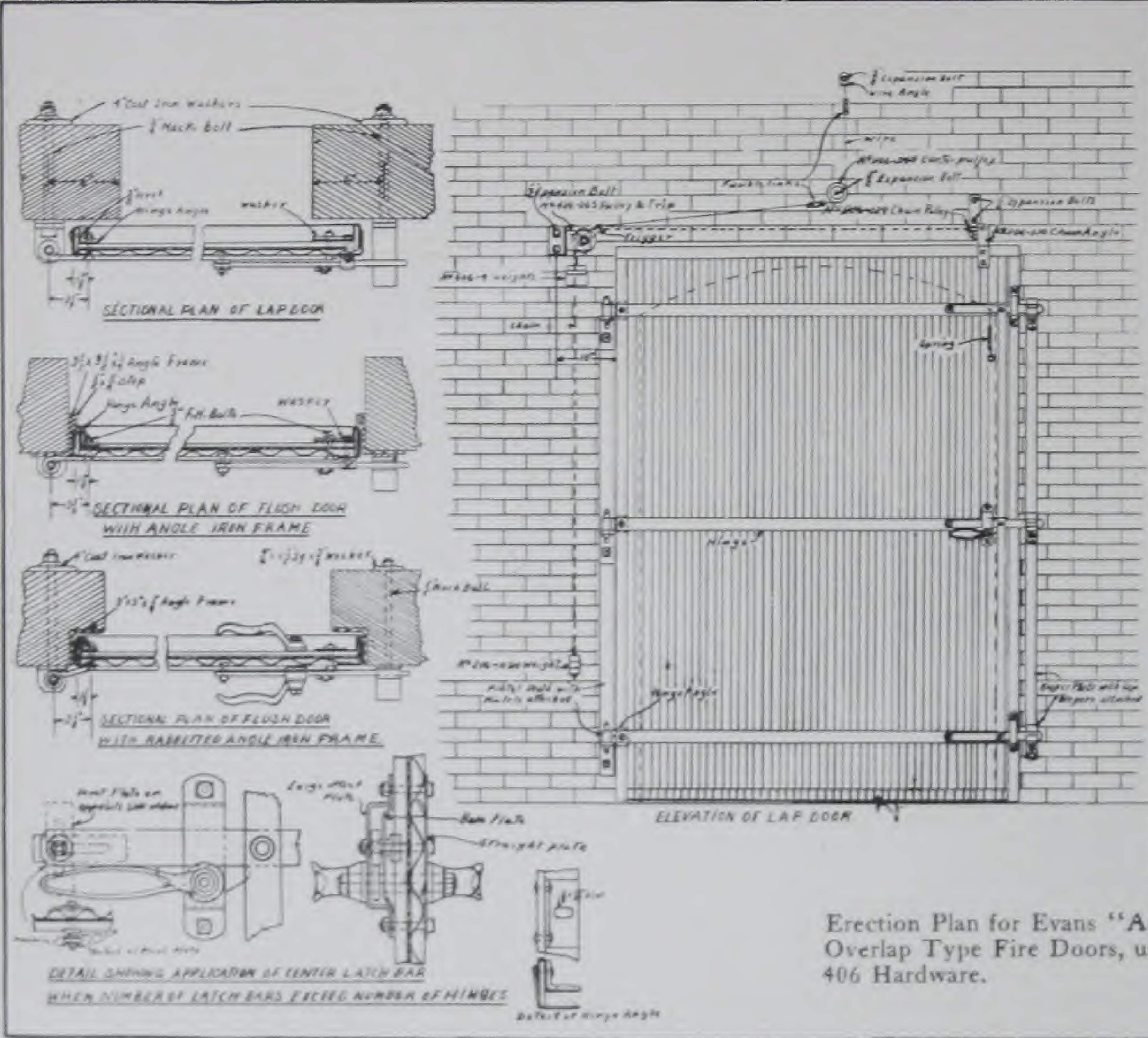
DIRECTIONS FOR ORDERING.—*First.* State exact width of opening (and angle iron or Z bars will be furnished long enough to extend 6 inches into wall on either side). *Second.* State thickness of wall. *Third.* On Fig. 2 sills state if plate is desired the full length of the angle irons as required by the rules or the width of the opening. Also state width of wall, so plate of correct width is furnished.



Erection plan for Evans "Almetl" Single Sliding Fire Doors, Inclined Top—using M. & E. R-W No. 102 Hardware.



Erection Plan for Evans "Almetl" Single Sliding Doors, Inclined Top—using M. & E A-P No. 500 Hardware.



DIRECTIONS FOR MOUNTING

Pintels.— Pintels for lap and rabbetted flush doors are attached to wall plates and are bolted to the wall with ¾" mach. bolts extending thru pintel, wall plate & wall. Locate pintels so hinges will be equal distance from top and bottom of door. The center of the pintel should be 2" from the edge of the door, not opening. Flush doors require ⅛" clearance between door and frame. Pintels for flush doors with angle iron frame do not require wall plate but are bolted to the frame with two ⅝" bolts.

Hinges.— Place the door in closed position with at least ⅜" blocking under door. Place hinges in pintels and mark bolt holes on doors, remove doors and drill holes for ⅝" bolts. Attach hinge angles to back side of doors with ⅝" rivets. The oval hole in hinge angle should be opposite bolt hole.

Latch.— Bolt pivot end of latch bars to the hinges as shown on the detail. Bolt hinges to door with ⅝" flat hd bolts. Latch end of hinges should have large square washers under the nut on the back side of the door. When the number of latch bars are not equal to the number of hinges, the pivot end of the center latch bar is bolted directly to the door using the special pivot plates with long oval holes, on each side of the door, see detail in lower left hand corner. Small offset plates are bolted to the frame of the door beyond each latch bar excepting the one with which the operating handle is to be used. The large offset plate for the operating handle is used on the front of the door and the flat plate on the back of the door. The offset base plate is used beneath the large offset plate with the latch bar between the two plates. Use ⅝" bolts for all offset plates. Bolt spring to door with a ½" bolt.

Keepers.— Keepers are attached to wall plates. Keepers for lap doors are bolted thru the wall with ¾" mach. bolts using 4" round cast washers on the opposite side of the wall. Keepers for rabbetted flush doors are bolted thru wall with ¾" mach bolts and 2½" square steel washers on the opposite side of the wall. Keepers for flush doors with angle iron frame, bolt directly to the frame with ⅝" bolts. Note, washers are not required when doors are used on both sides of wall.

Chain Angle.— Attach chain angle to the front of the door near top with ⅜" machine bolts as shown.

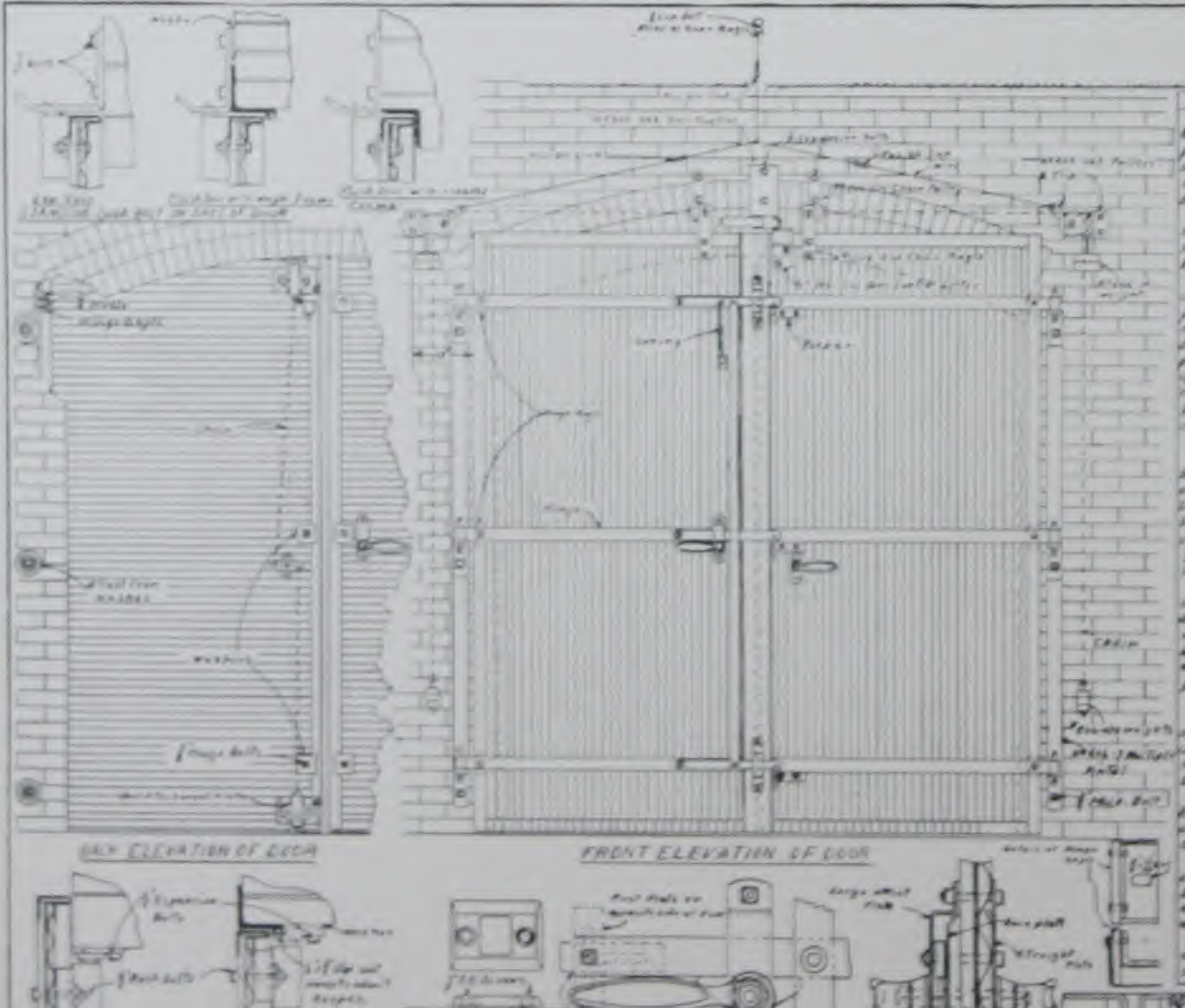
Chain Pulleys.— Attach No 216-029 chain pulley to wall above door with ⅝" expansion bolts in such position that groove in pulley will be in line with hole in chain angle to which chain is attached. Attach 406-065 pulley to the wall at top of [illegible] in line horizontally with groove of No 216-029 chain pulley. No 406-065 chain pulley bolt holes should be 10" from edge of door, use ⅝" expansion bolts.

Fusible Link.— Fasten No 216-043 center pulley to wall above door so that fusible link will be over center of opening. Attach wire to wall near ceiling with ⅝" expansion bolt. Fasten the wire to wire angle, pass around pulley and fasten to eye on No 406-065 trigger. Draw wire so top of trigger will be horizontal.

Chain Weights.— Hang No 406-4 Extra weights on fork of trigger. Pass one end of chain up thru hole in weights, over sheave of 406-065 pulley, around sheave of No 216-029 pulley & attach to hole in chain angle by securing a flexible ring in end of chain. Attach No 216-020 weights to opposite end of chain, which should be long enough to allow doors to swing open slightly past 90 degree angle only.

Washers.— All ¾" mach bolts passing thru wall require 4" cast washers on opposite side of wall. Washers are not required when doors are used on both side of wall.

Erection Plan for Evans "Almetl" Single Swinging Overlap Type Fire Doors, using M. & E. R-W No. 406 Hardware.



DIRECTIONS FOR MOUNTING

Pintels.— Pintels for lap & rabbetted flush doors are attached to wall plates & are bolted to wall with ¾" bolt extending thru pintel, wall plate & wall. Locate the pintels so hinges will be equal distance from top & bottom of doors. Center of pintel should be 2" from edge of door (not opening). Flush doors require ⅛" clearance between door & frame.) Pintels for flush door with angle iron frame do not require wall plate but are bolted to the frame with two ⅝" bolts.

Hinges.— Place doors in closed position with at least ⅜" blocking under door; place hinges in pintels & mark bolt holes on doors, remove doors & drill holes for ⅝" bolts. Attach hinge angle to back side of door with ⅝" rivets, the oval hole in hinge angle should be opposite the bolt hole.

Latch.— [illegible]

Keepers.— Attach keepers to door with ⅝" bolts as shown.

Door Bolts.— [illegible]

Door Control.— [illegible]

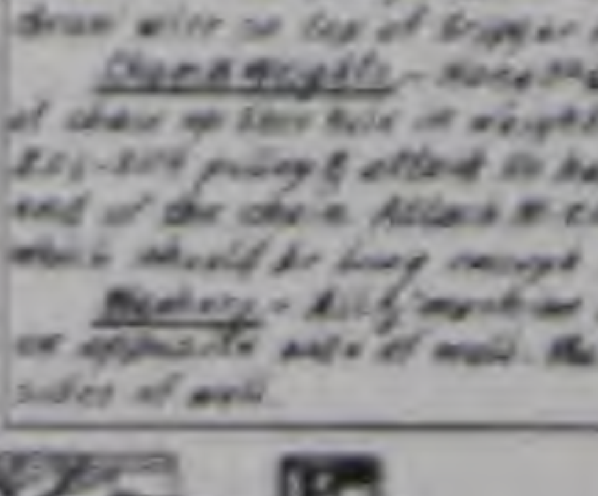
Chain Angle.— Attach chain angles to top of doors near the latch side with ⅜" bolts.

Chain Pulleys.— [illegible]

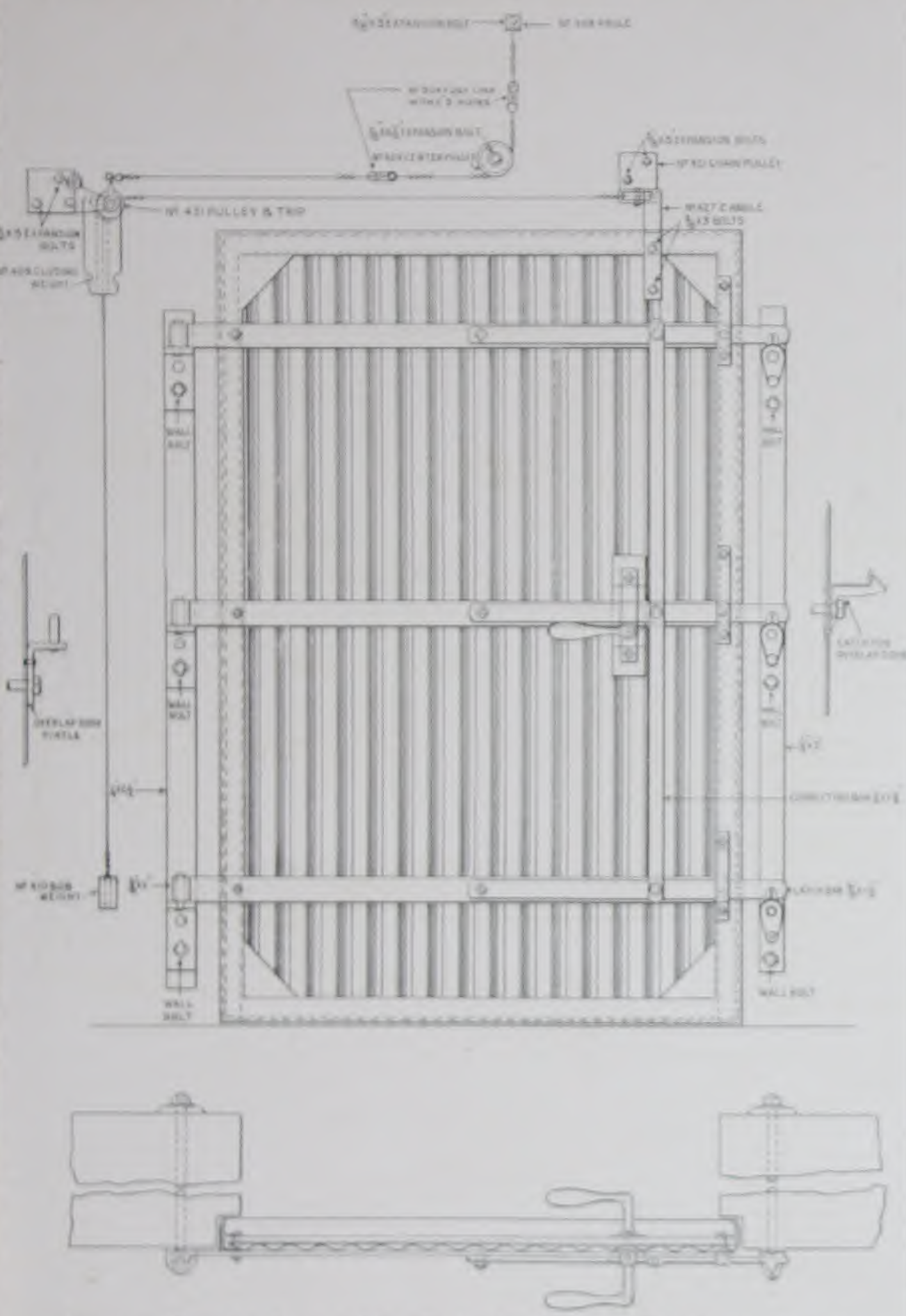
Fusible Link.— [illegible]

Chain & Weights.— [illegible]

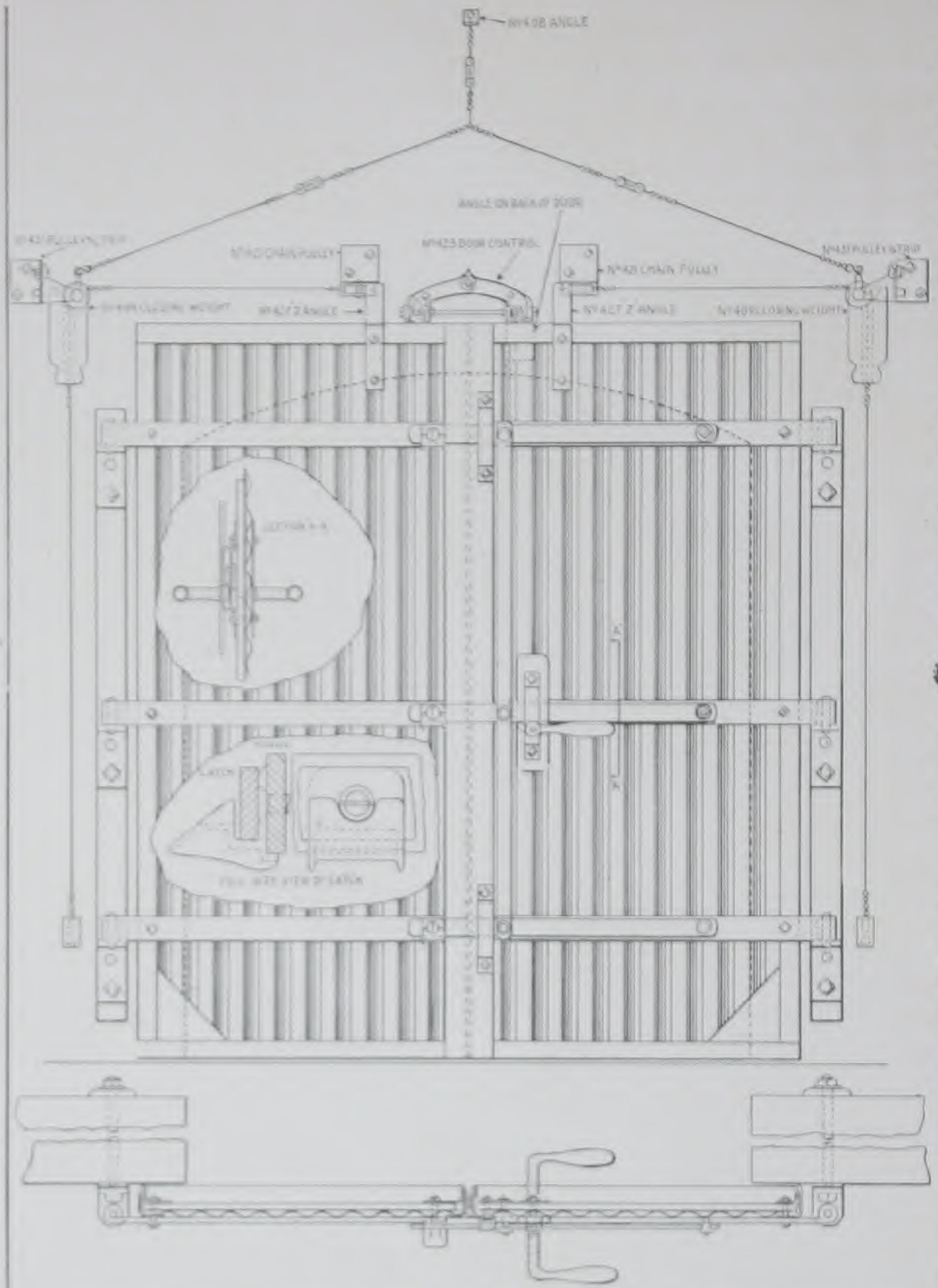
Washers.— All ¾" machine bolts passing thru wall require 4" cast washers on opposite side of wall. Washers are not required when doors are used on both sides of wall.



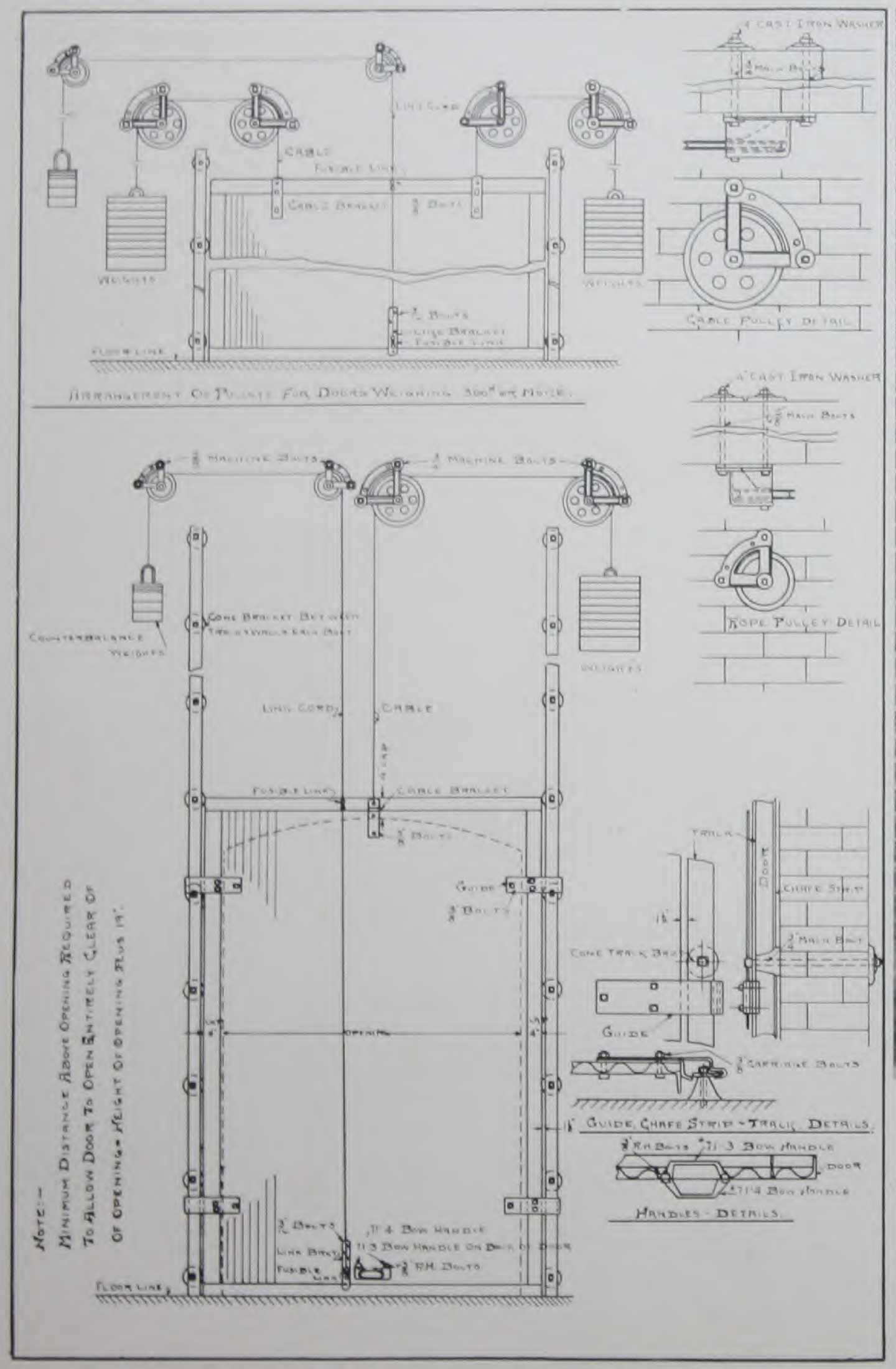
Erection Plan for Evans "Almetl" Double Swinging Overlap Type Fire Door—using M. & E. R-W No. 506 Hardware.



Erection Plan for Evans "Almetl" Single Swinging Fire Door, Flush Type, rabbetted opening—using M. & E. A-P Hardware.

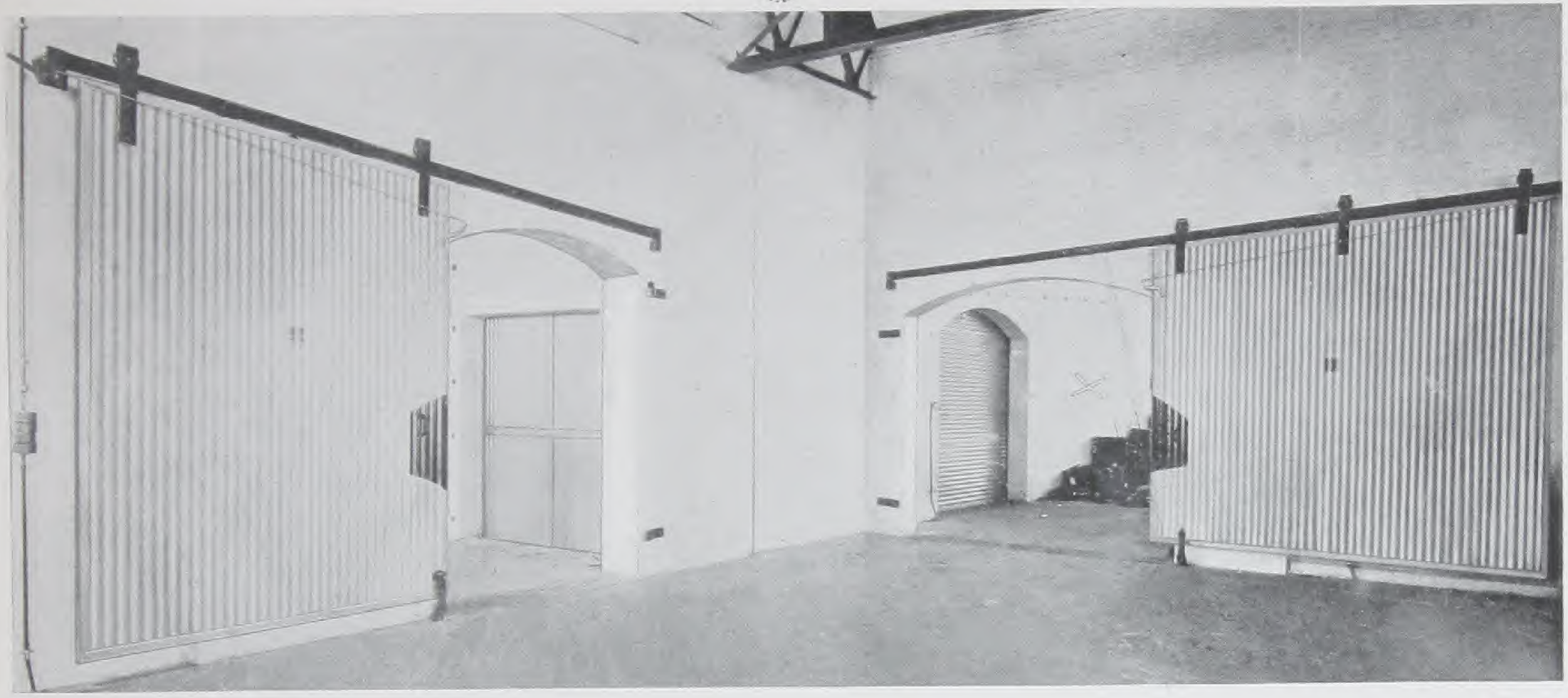


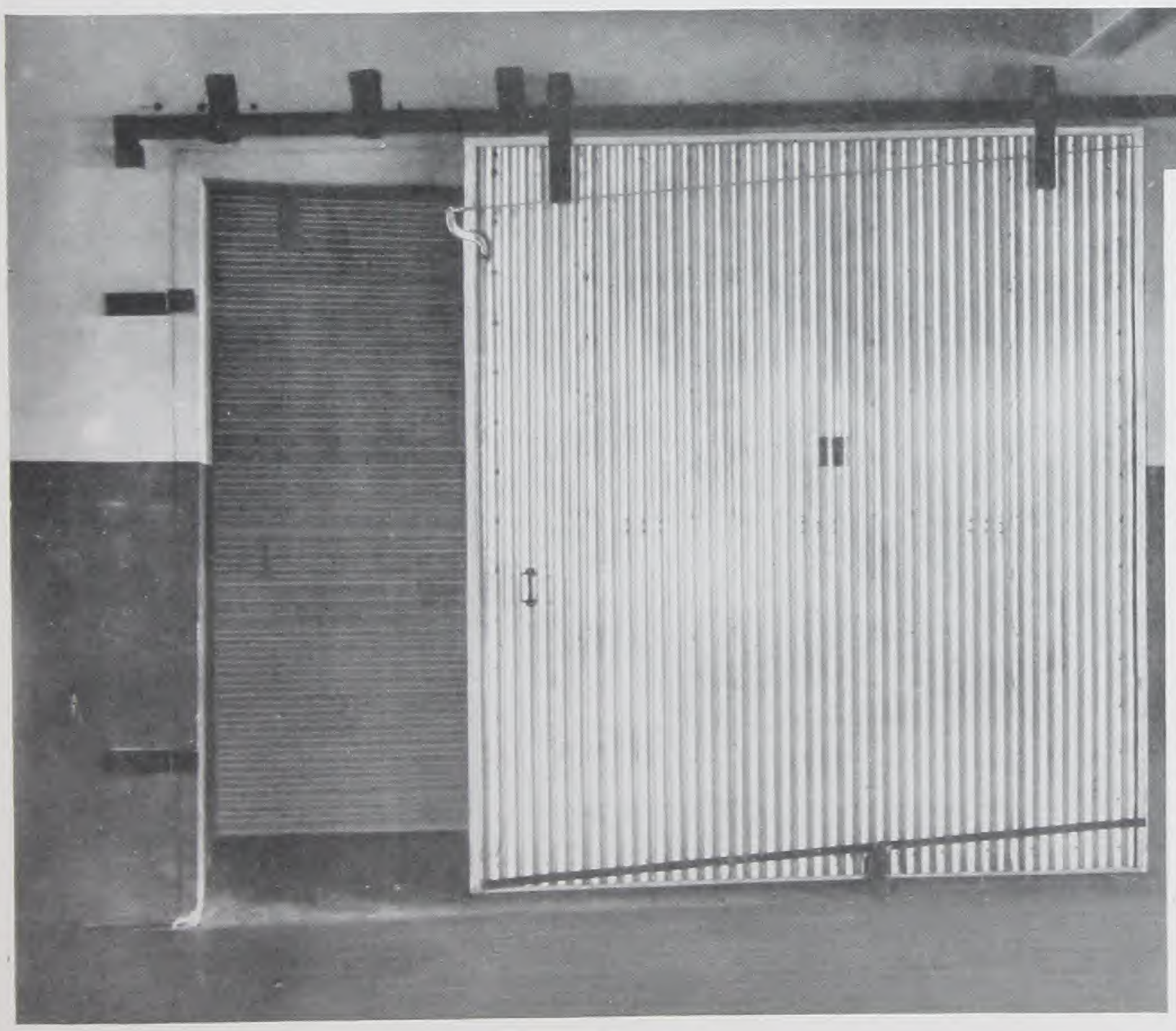
Erection Plan for Evans "Almetl" Double Swinging Fire Door, Overlap Type —using M. & E. A-P Hardware.



(Above)—Evans "Almetl" Double Swinging Flush Type Fire Doors, with arched tops (a special construction). These doors operate with Non-Automatic Hardware, but Automatic Hardware can also be used. Installed in plant of the Floyd-Wells Co., Royersford, Pa. Note heavy astragal strip which protects centre apperture between doors when in closed position.

(At Left)—Erection Plan for Evans "Almetl" Vertical Sliding Fire Door, arched top opening—using M. & E. R-W No. 203 Hardware.





Above, Evans Almetl **Single Sliding** Fire Doors, Inclined Top, with flat track hardware, protecting arched top openings in one of the largest wire rope works in America.

At left, Garage of Holmes-Adkins Co., Omaha, Neb., in which both sides of openings are protected by Evans "Almetl" **Single Sliding** Inclined Top Fire Doors, equiped with 2-link flat track hardware.

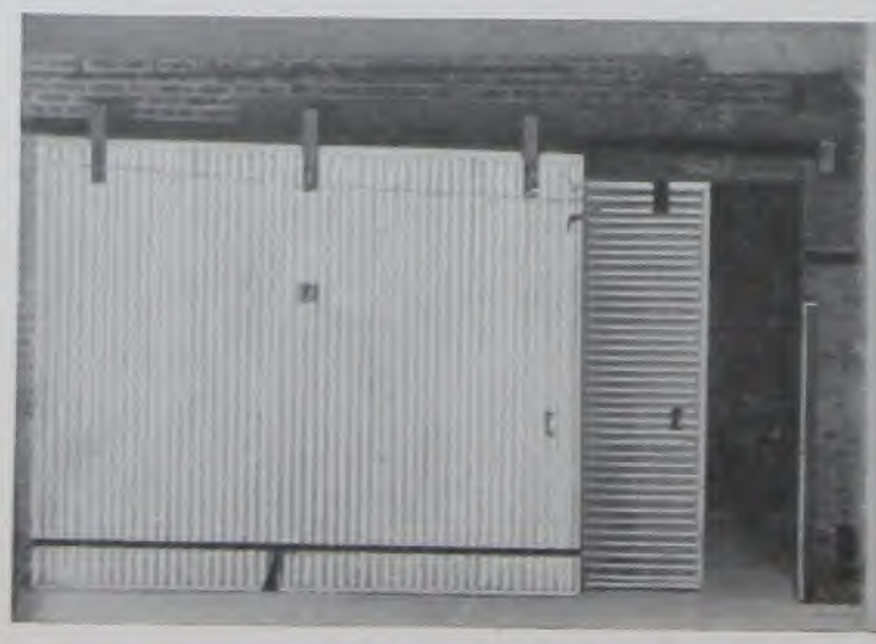
Bottom, Liggett & Myers Tobacco Co., Lexington, Ky. Both sides of all openings are protected with Evans "Almetl" **Single Sliding** Inclined Top Fire Doors, using 2-link round track hardware.

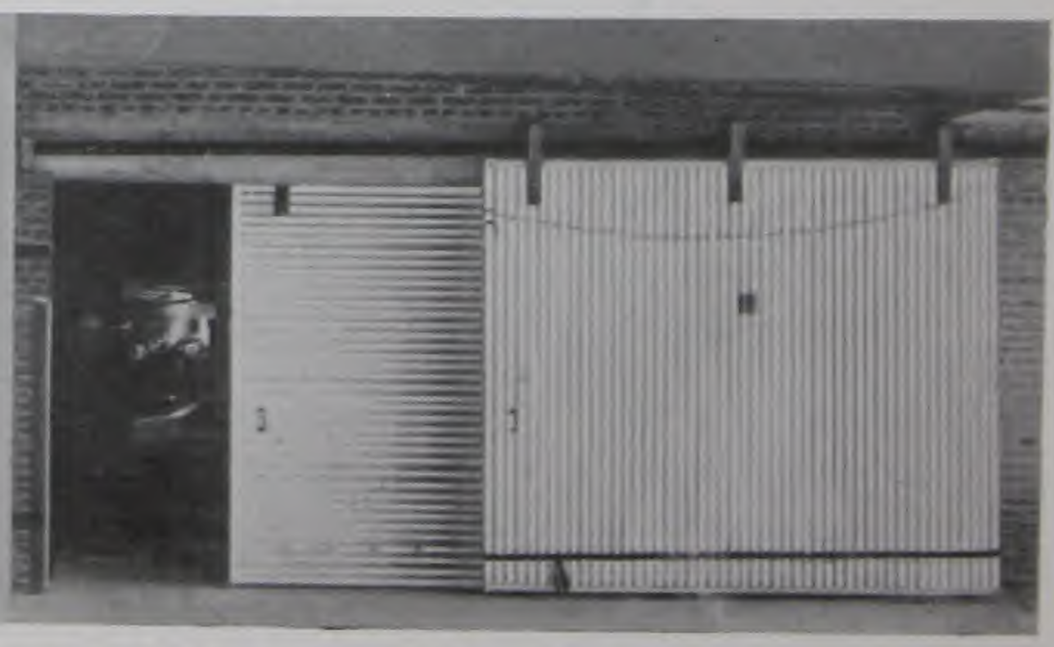
At top, Evans "Almetl" **Single Sliding** Fire Doors, Inclined Top, with flat track hardware, in Warehouse of Detroit United Railway Co., Detroit, Mich.

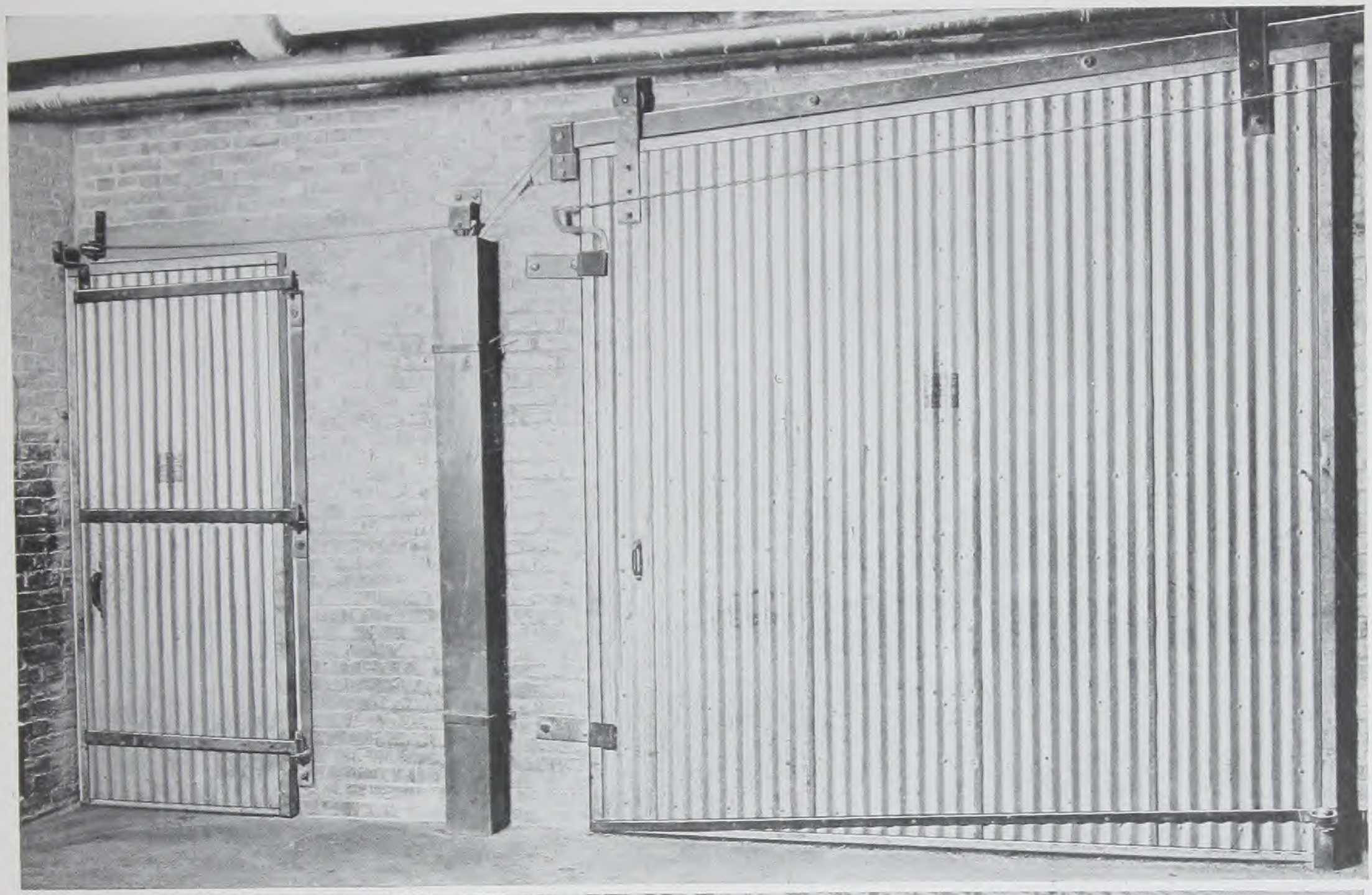
Left center, Fitzgibbons & Crisp's Wagon Works, Trenton, N. J., showing series of Evans "Almetl" **Double Sliding** Fire Doors, Inclined Top, with round track hardware. Note recess at top of doors for overhead track.

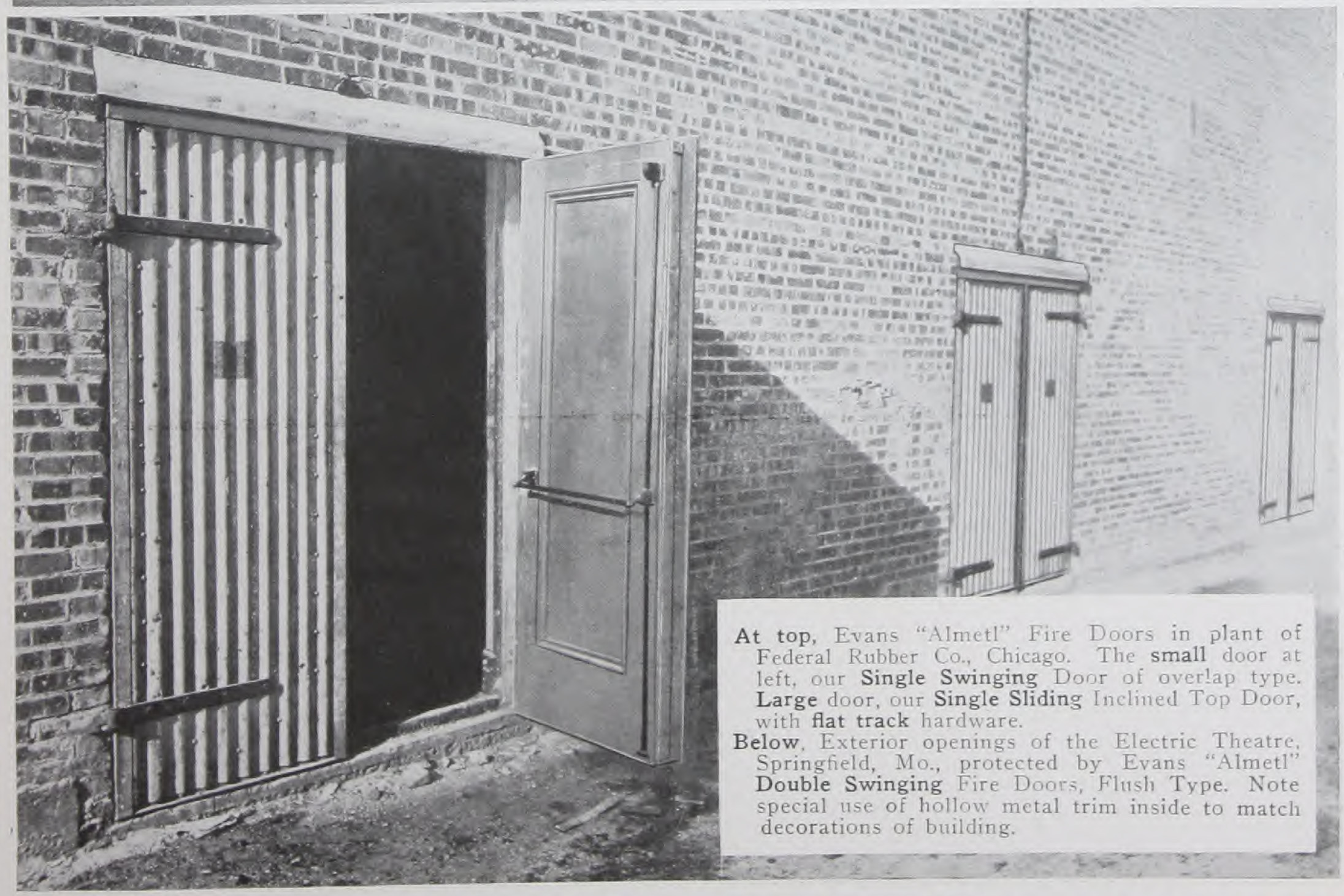
Right center, Wells Fargo Express Company office building, New York City. Evans "Almetl" **Single Sliding** Fire Doors, painted white to match the marble walls and floor; arranged to slide into the wall.

Bottom of page, Pennsylvania Railroad Company's in and outbound freight station, Philadelphia. Evans "Almetl" **Single Sliding** Fire Doors, Inclined Top, with flat track hardware, protect both sides of openings.







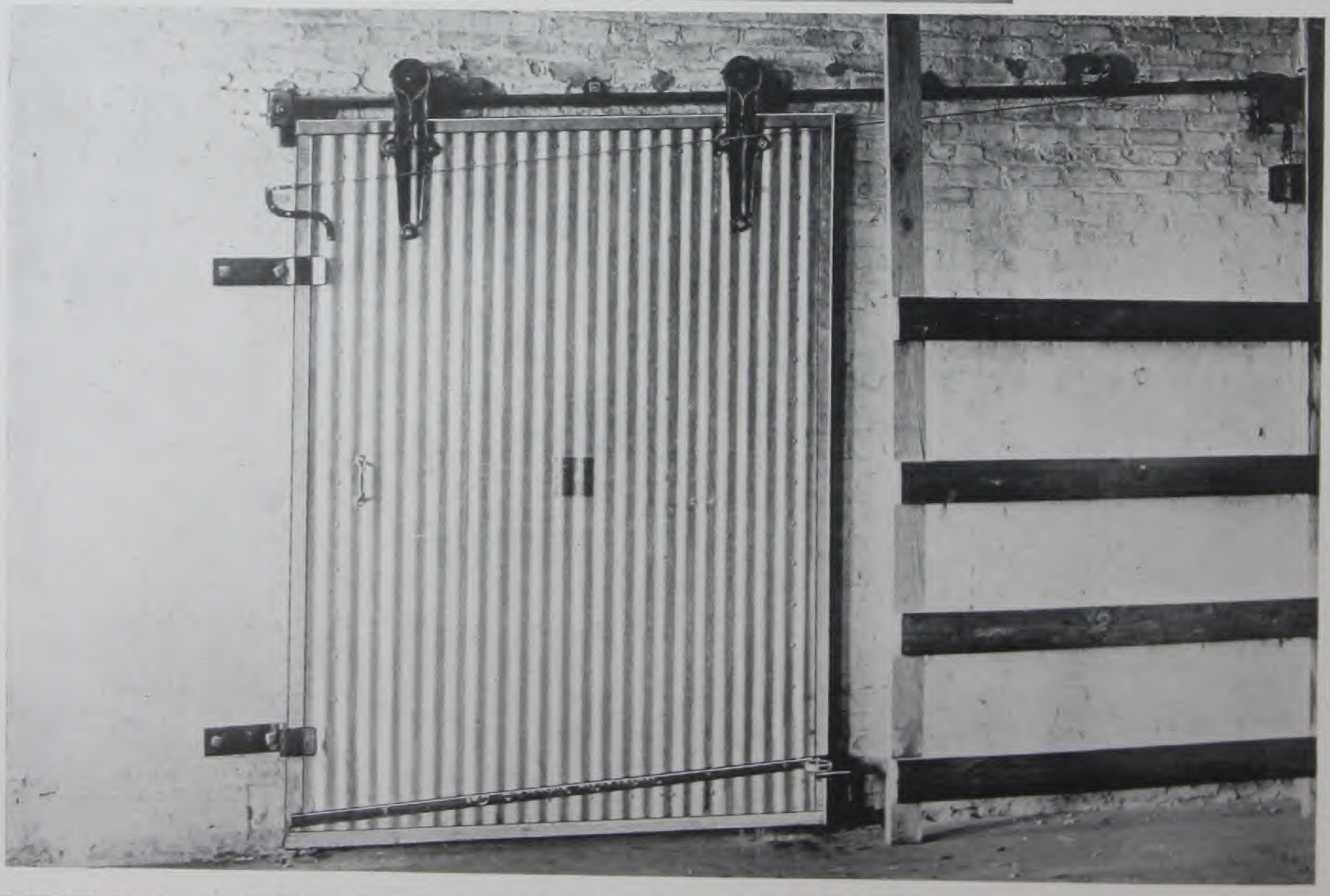


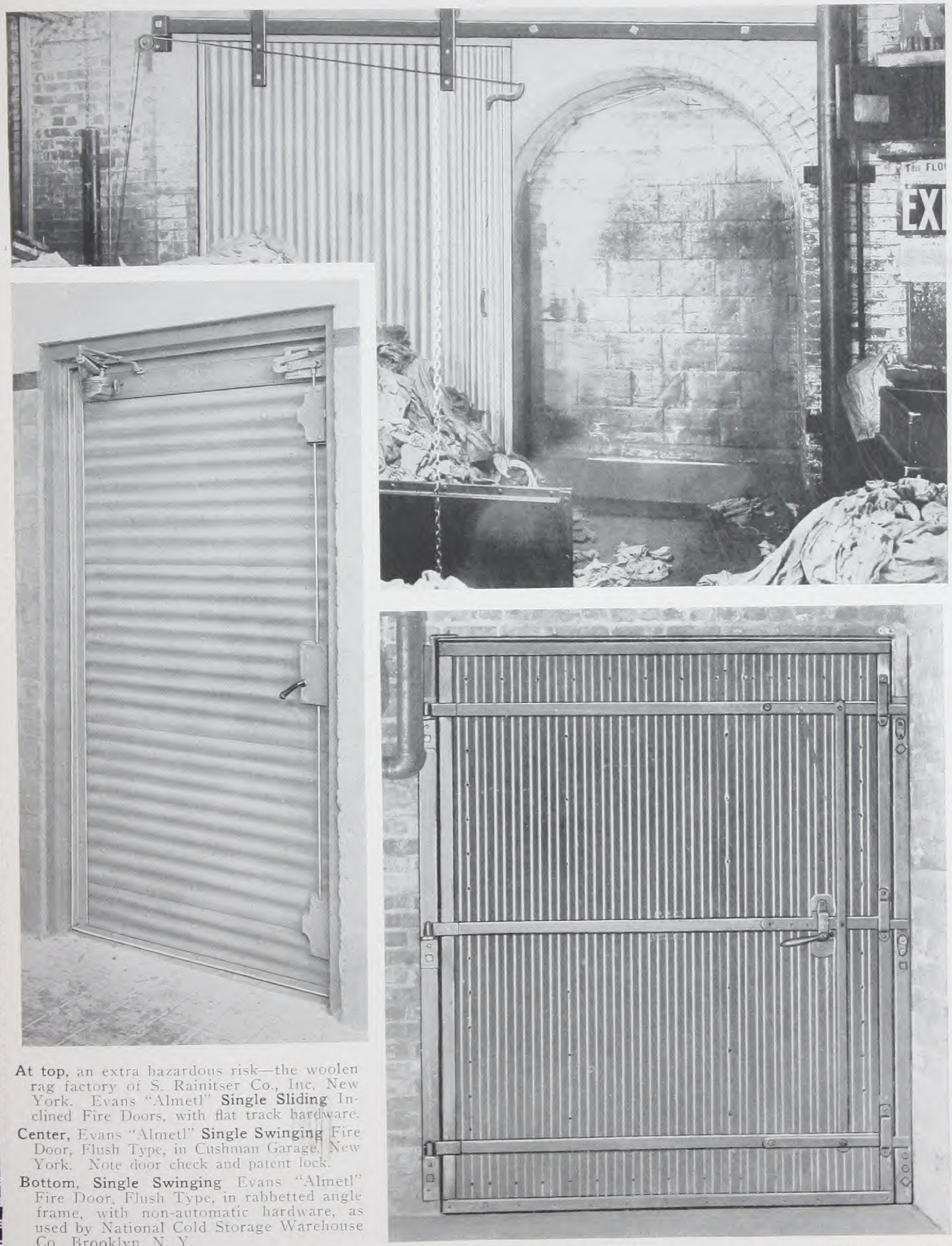
At top, Evans "Almetl" Fire Doors in plant of Federal Rubber Co., Chicago. The **small** door at left, our **Single Swinging** Door of overlap type. **Large** door, our **Single Sliding** Inclined Top Door, with **flat track** hardware.

Below, Exterior openings of the Electric Theatre, Springfield, Mo., protected by Evans "Almetl" **Double Swinging** Fire Doors, Flush Type. Note special use of hollow metal trim inside to match decorations of building.

At left, Evans "Almetl" **Single Swinging** Fire Doors, **Overlap Type**, installed for National Cold Storage Warehouse Co., Brooklyn, N. Y. Non-automatic hardware.

Below, Evans "Almetl" **Single Sliding** Fire Door, Inclined Top, round track hardware, installed in Kroehler Mfg. Co. building, Binghampton, N. Y. Frame partition protects the door, which slides behind it in opening.

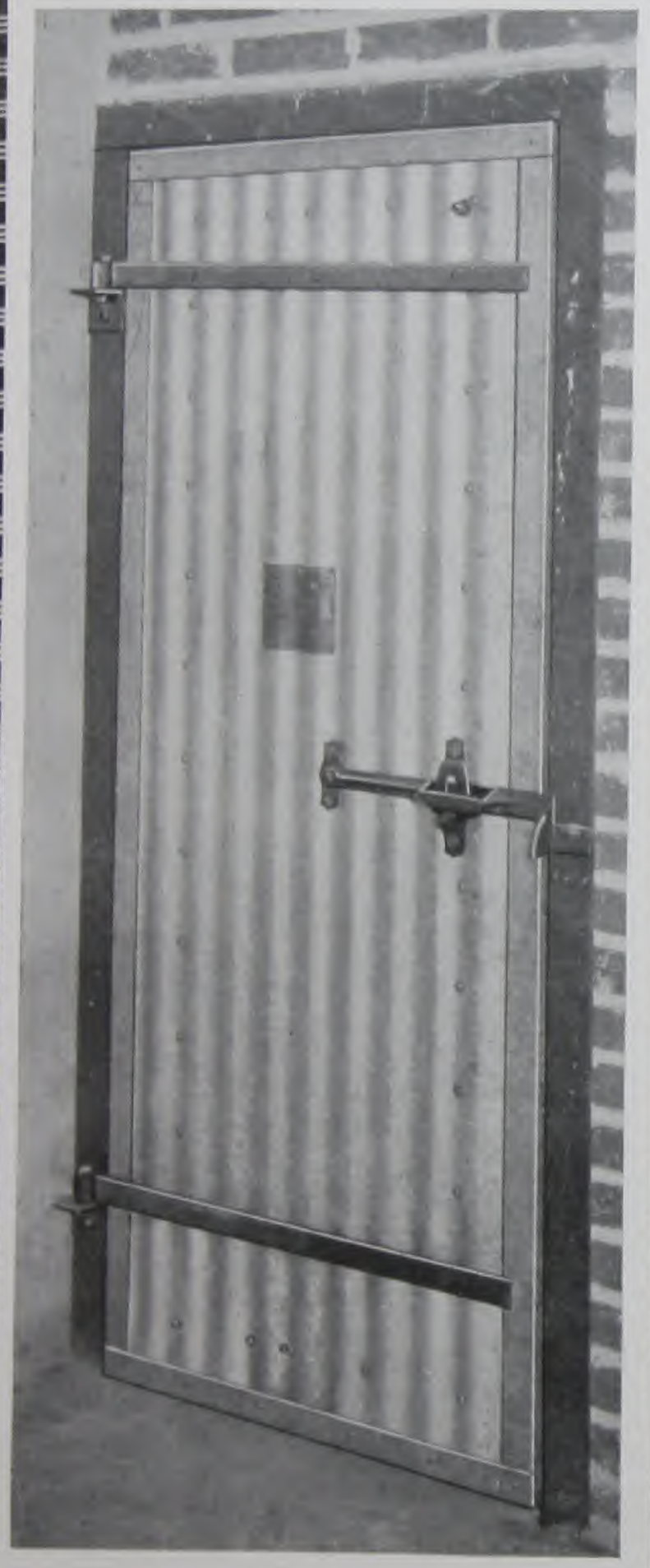




At top, an extra hazardous risk—the woolen rag factory of S. Rainitser Co., Inc. New York. Evans "Almetl" **Single Sliding** Inclined Fire Doors, with flat track hardware.

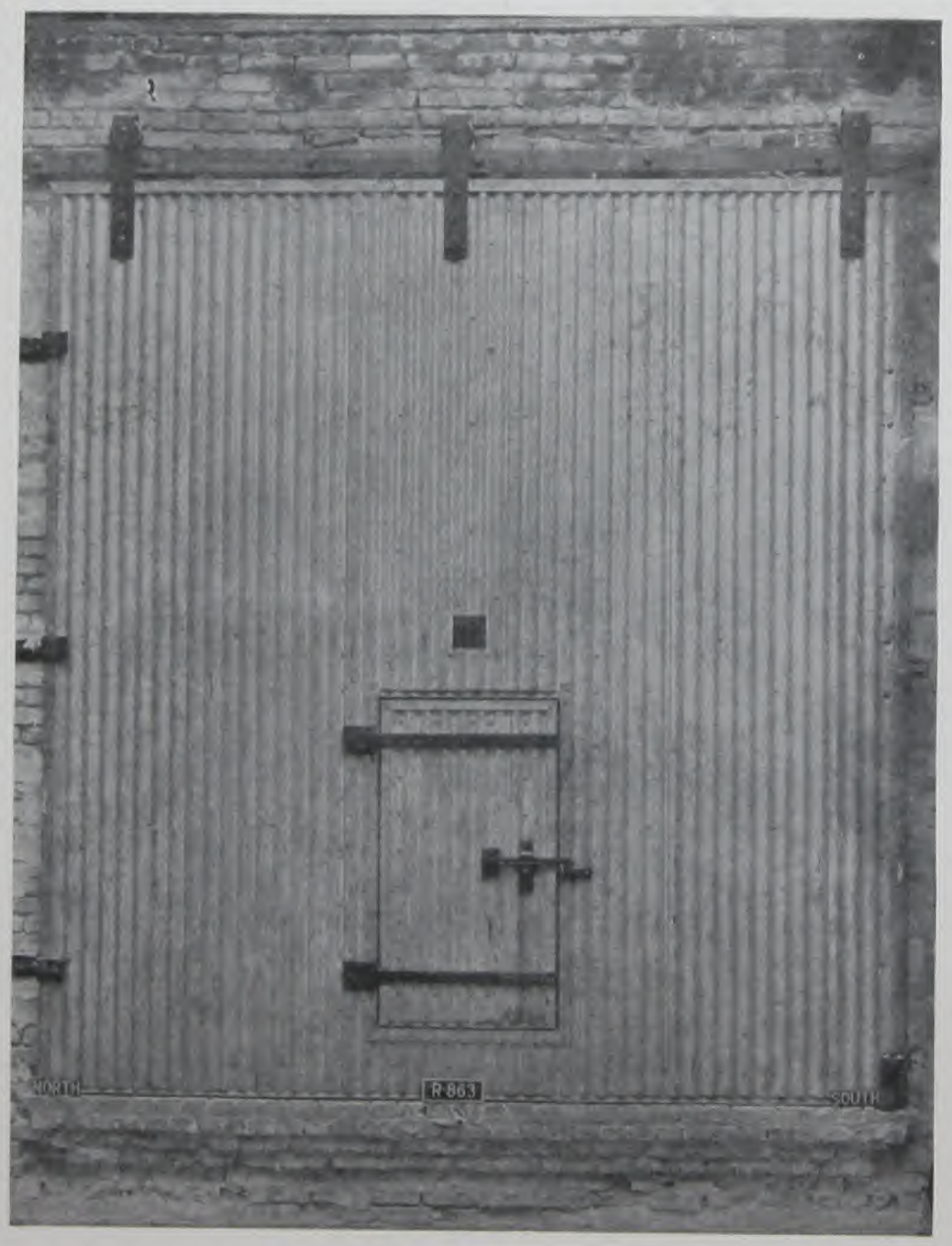
Center, Evans "Almetl" **Single Swinging** Fire Door, Flush Type, in Cushman Garage, New York. Note door check and patent lock.

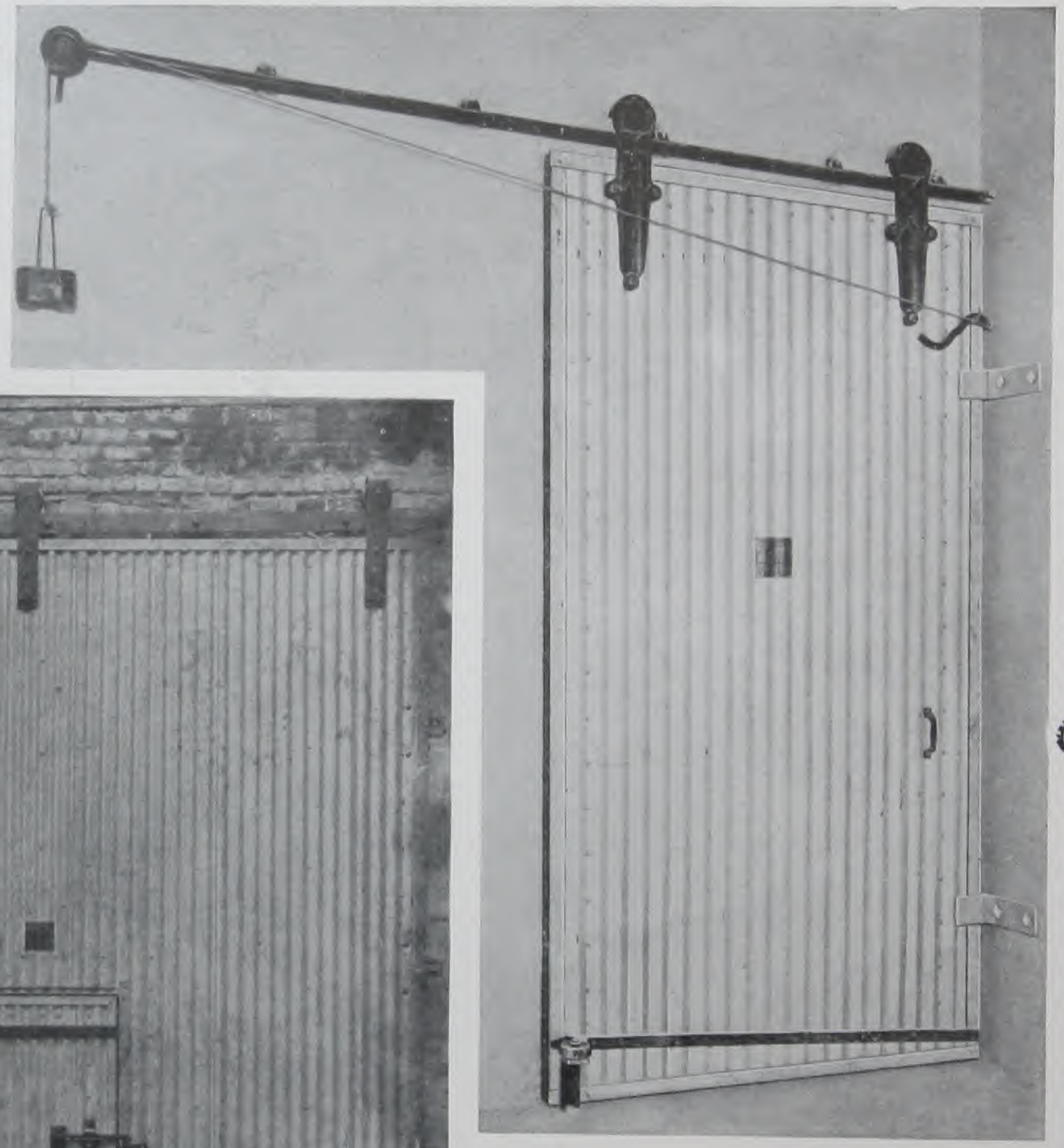
Bottom, Single Swinging Evans "Almetl" Fire Door, Flush Type, in rabbetted angle frame, with non-automatic hardware, as used by National Cold Storage Warehouse Co., Brooklyn, N. Y.



Evans "Almetl" **Single Swinging** Fire Door, **Flush Type** (Angle Iron Frame), in warehouse of N. D. Nelson, Memphis, Tenn. Non-Automatic hardware used.

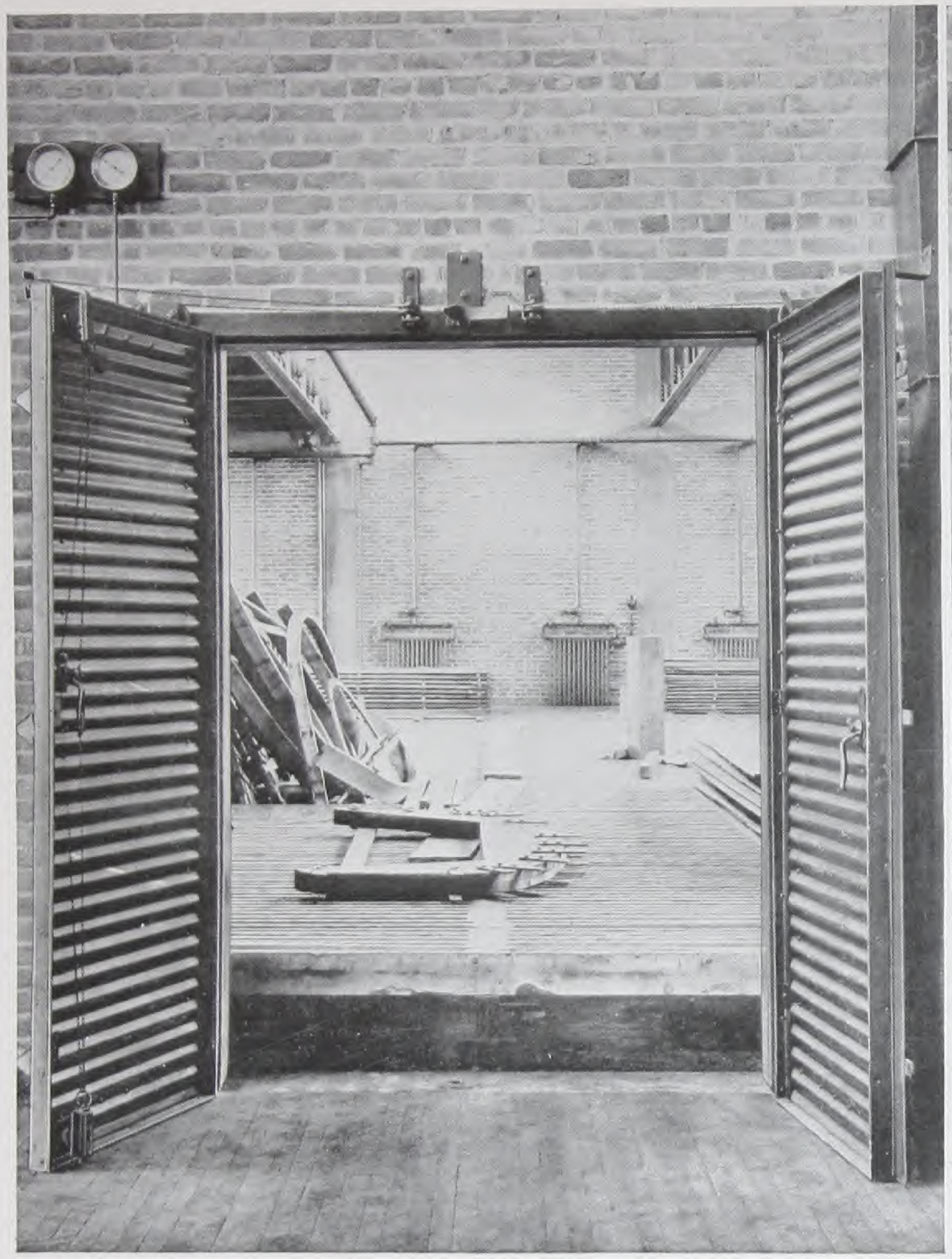
Evans "Almetl" **Single Sliding** Door, **with Wicket Gate**, as set up and ready for testing at Underwriters' Laboratories. (Test was made for a 10'x12' opening, and was very successful.)

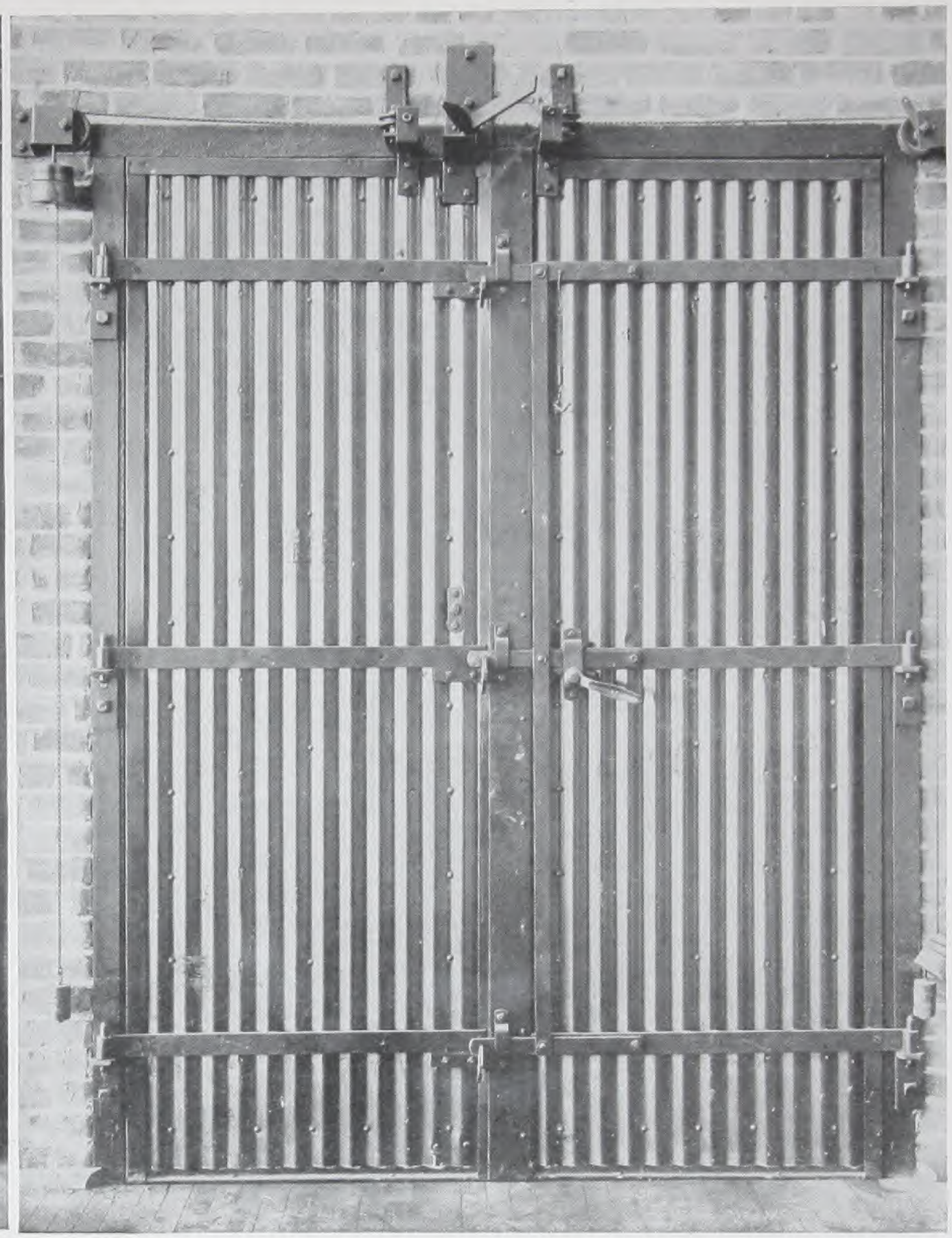




Evans "Almetl" **Single Sliding Inclined Top** Fire Door in Patterson Transfer Co. Warehouse, Memphis, Tenn. Round track hardware.

Note use of special bumpers to protect side wall, closeness of which had allowed no clearance.

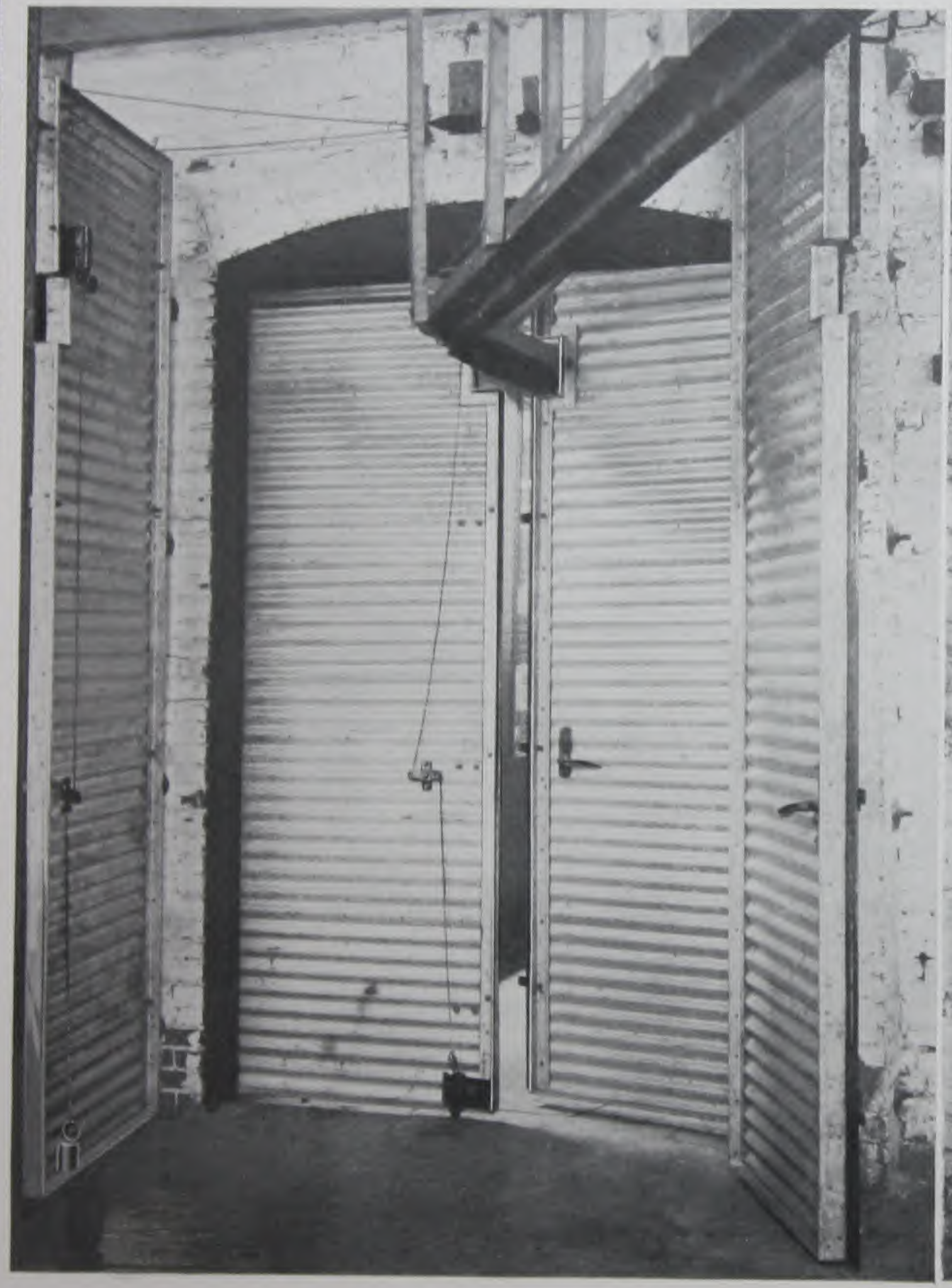


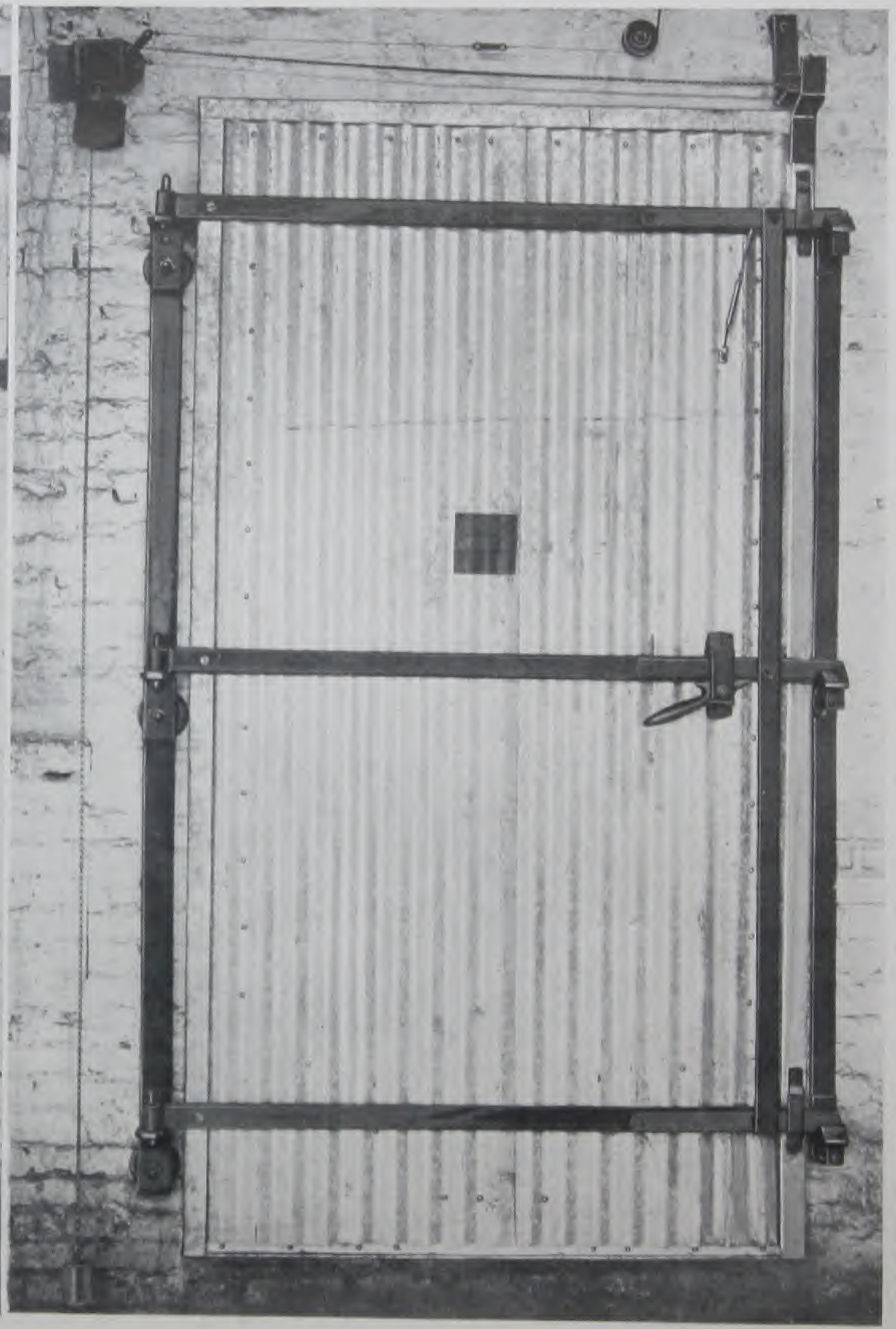


Evans "Almetl" Fire Doors, **Double Swinging,** Flush Type, set into a rabbetted angle iron frame. Both views are of doors in the carpenter shop of the Detroit United Railway Co., Highland Park, Mich.

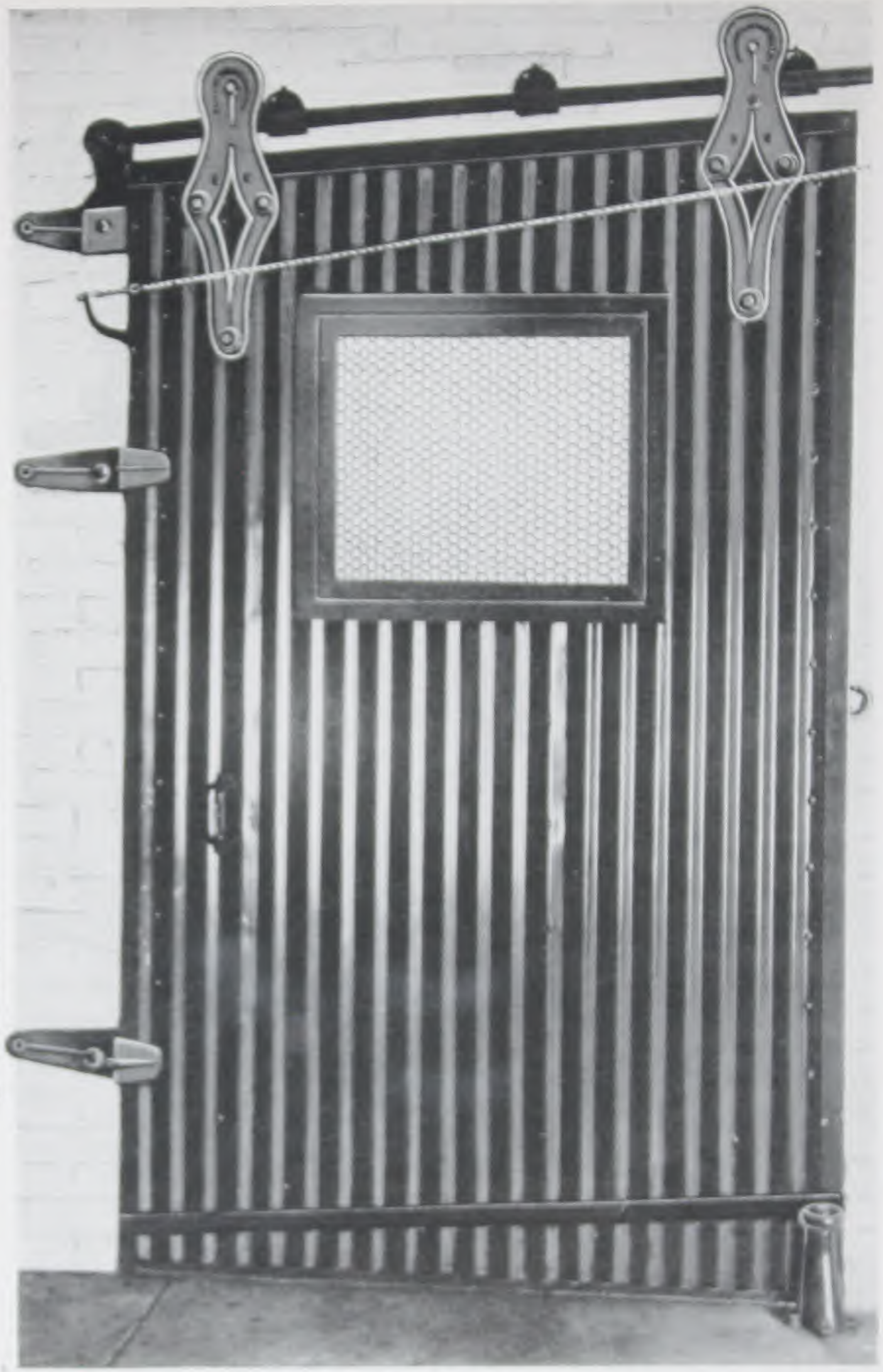
Note in the illustration at left the astragal strip at edge of right-hand door, then in illustration at right how astragal overlaps, when doors are closed.

NOTE.—Evans "Almetl" Doors are rigid in plane—and do not bend transversely and hit wall in closing.





Two views in the plant of W. G. Clore Mfg. Co., Washington, Ind. At right, Evans "Almetl" **Single Swinging** Fire Door. At left, Evans "Almetl" **Double Swinging** Fire Doors, Overlap Type, protecting **both sides** of arched top opening. Note how doors are recessed to provide for overhead trolley track.
NOTE.—Evans "Almetl" Doors are rigid in plane—and do not bend transversely and hit wall in closing.



Above, Evans "Almetl" **Single Sliding** Fire Door, inclined top, in our Philadelphia plant. Round track, 2-link hardware.

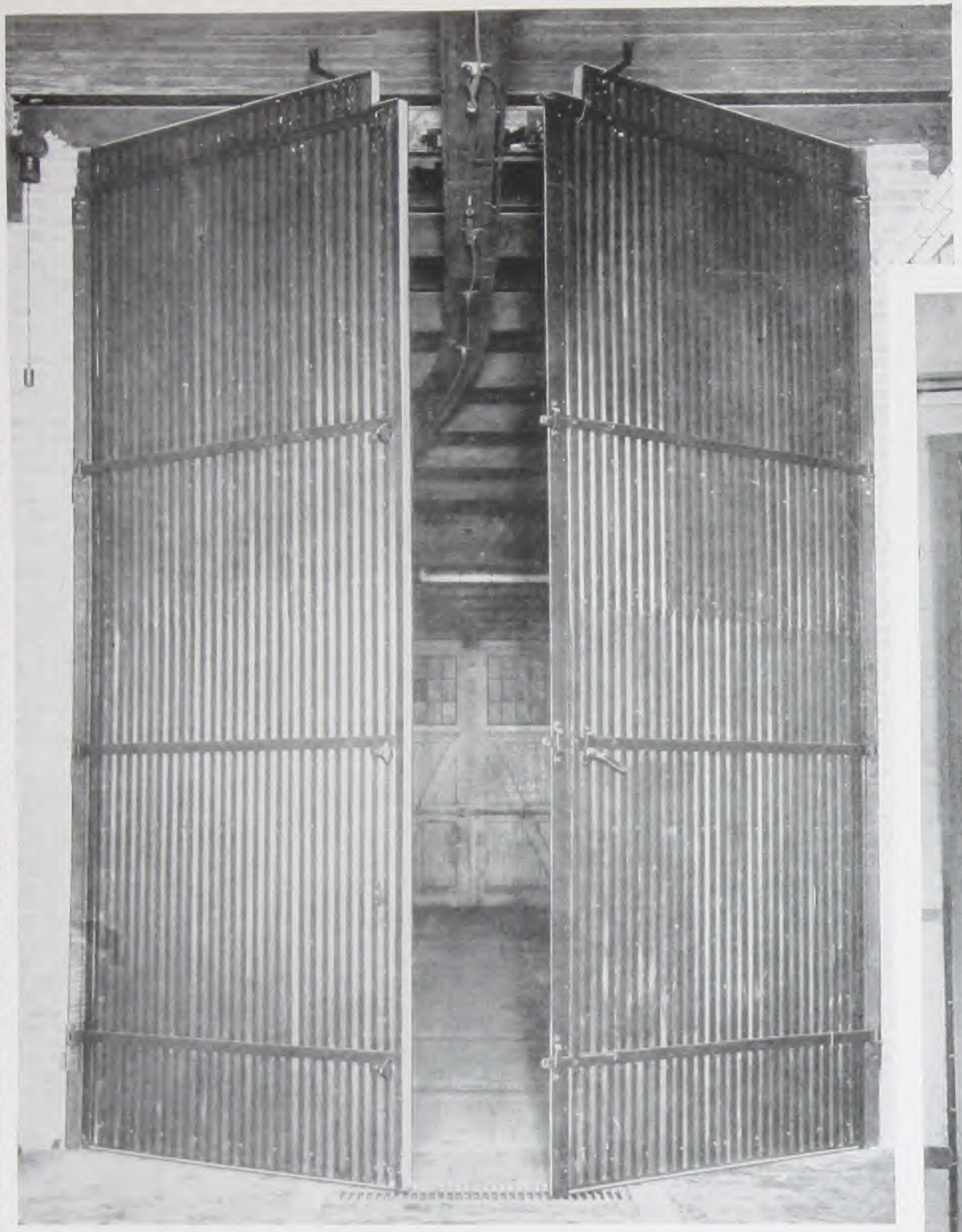
At right, Evans "Almetl" **Single Sliding** Fire Door, with polished, wired glass panel. (**Now** approved and labeled.) Round track hardware.

NOTE.—Evans "Almetl" Doors are rigid in plane, and indestructible in use.

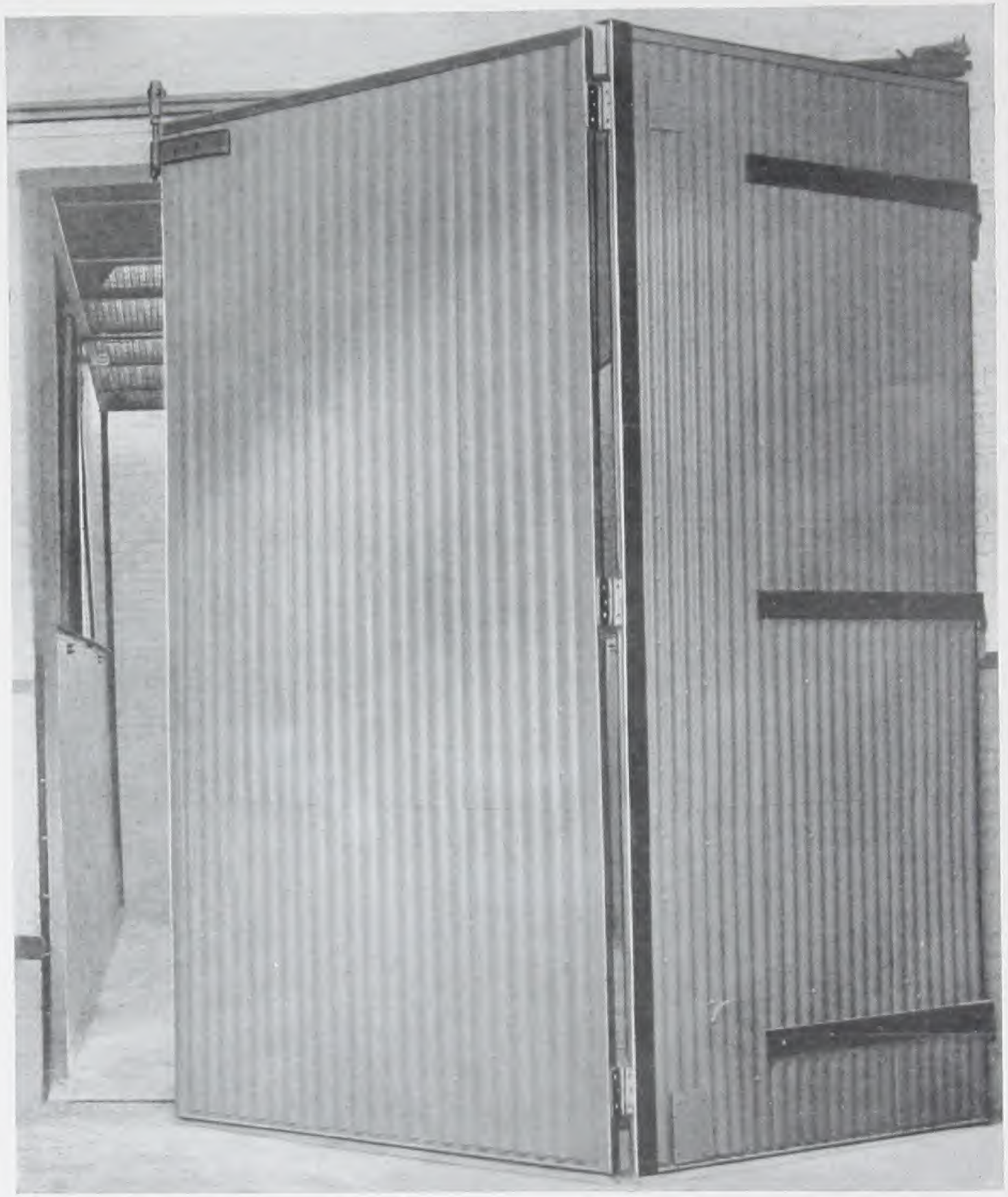
Above, Evans "Almetl" **Single Sliding** Fire Door—Inclined top; round track hardware—in Scudder-Gale Grocery Co., building, St. Louis, Mo.

At right, same type Evans "Almetl" Fire Door in plant of Dryden Rubber Co., Chicago.

NOTE.—Evans "Almetl" Doors are rigid in plane, and indestructible in use.

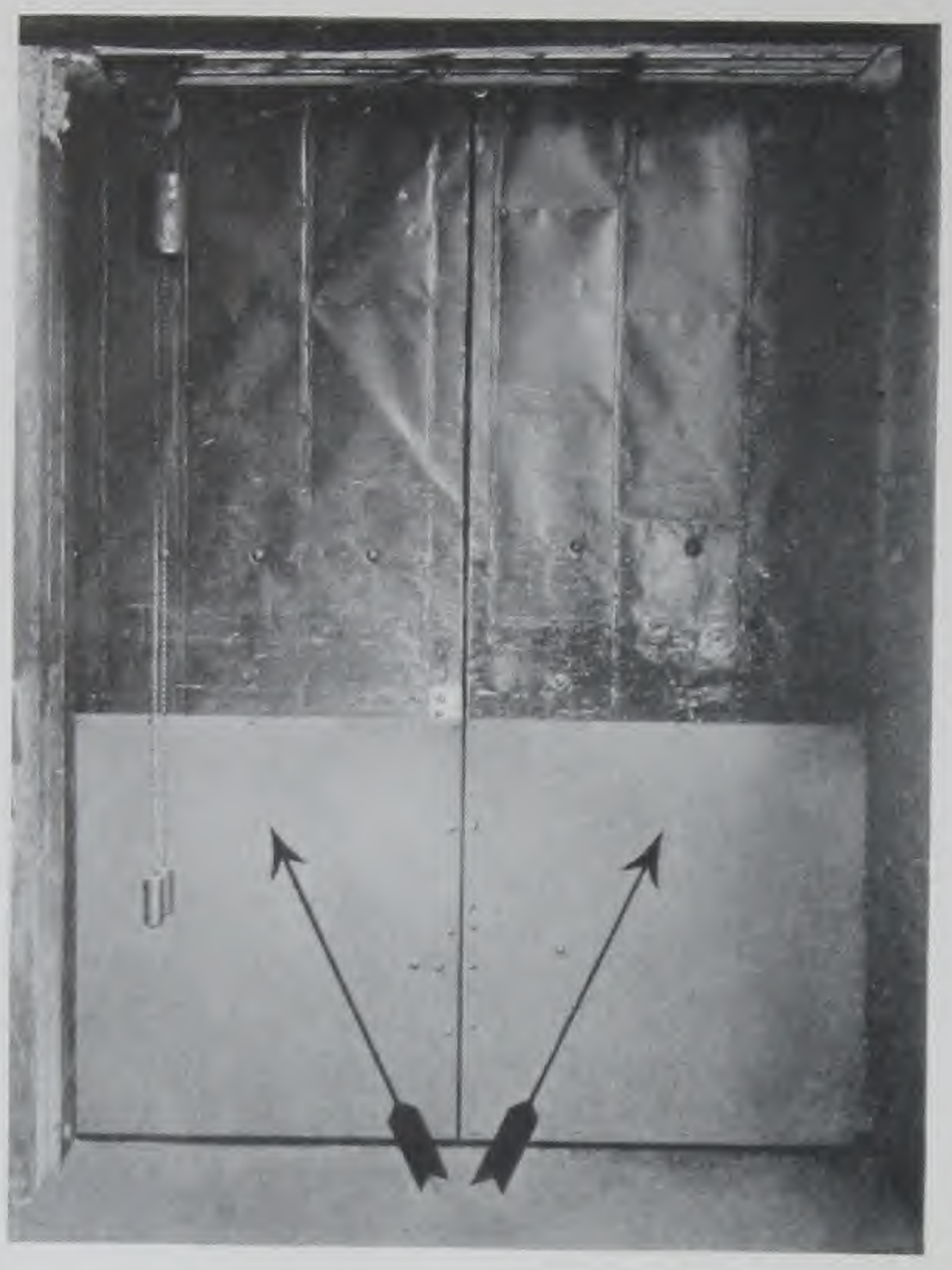


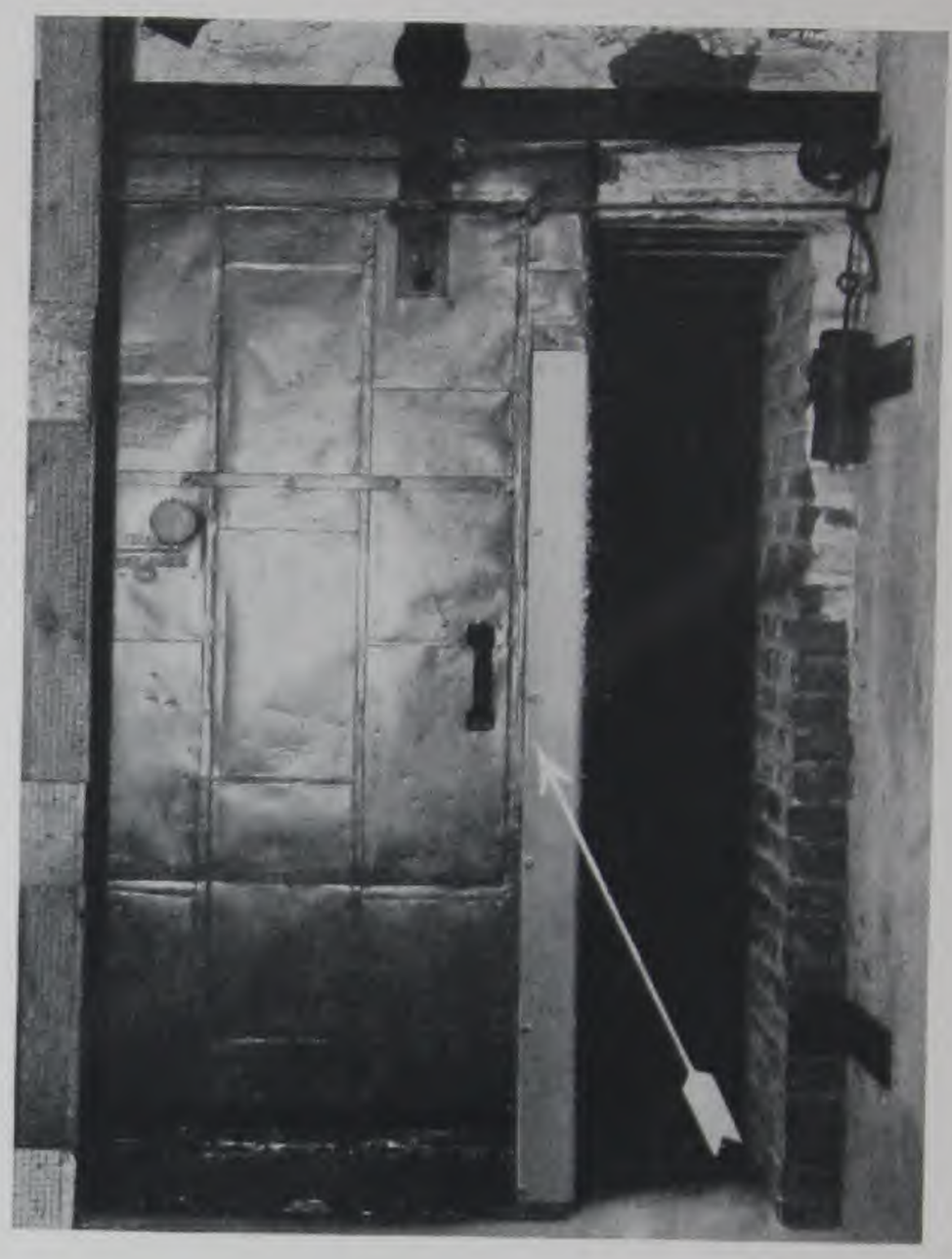
At left, Evans "Almetl" **Double Swinging** Fire Doors, Overlap Type, recessed for overhead wiring, installed in carpenter shop of Detroit Electric Railway Co., Detroit, Mich. Although opening is very large, viz., 12 feet six inches wide by 16 feet high, the doors operate with remarkable efficiency and ease.



At right, Evans "Almetl" **Sliding Folding** Fire Doors, installed in Cushman Garage and Stable, Bronx, New York.

NOTE.—Evans "Almetl" Doors are rigid in plane—and do not bend transversely and are indistructible in use.

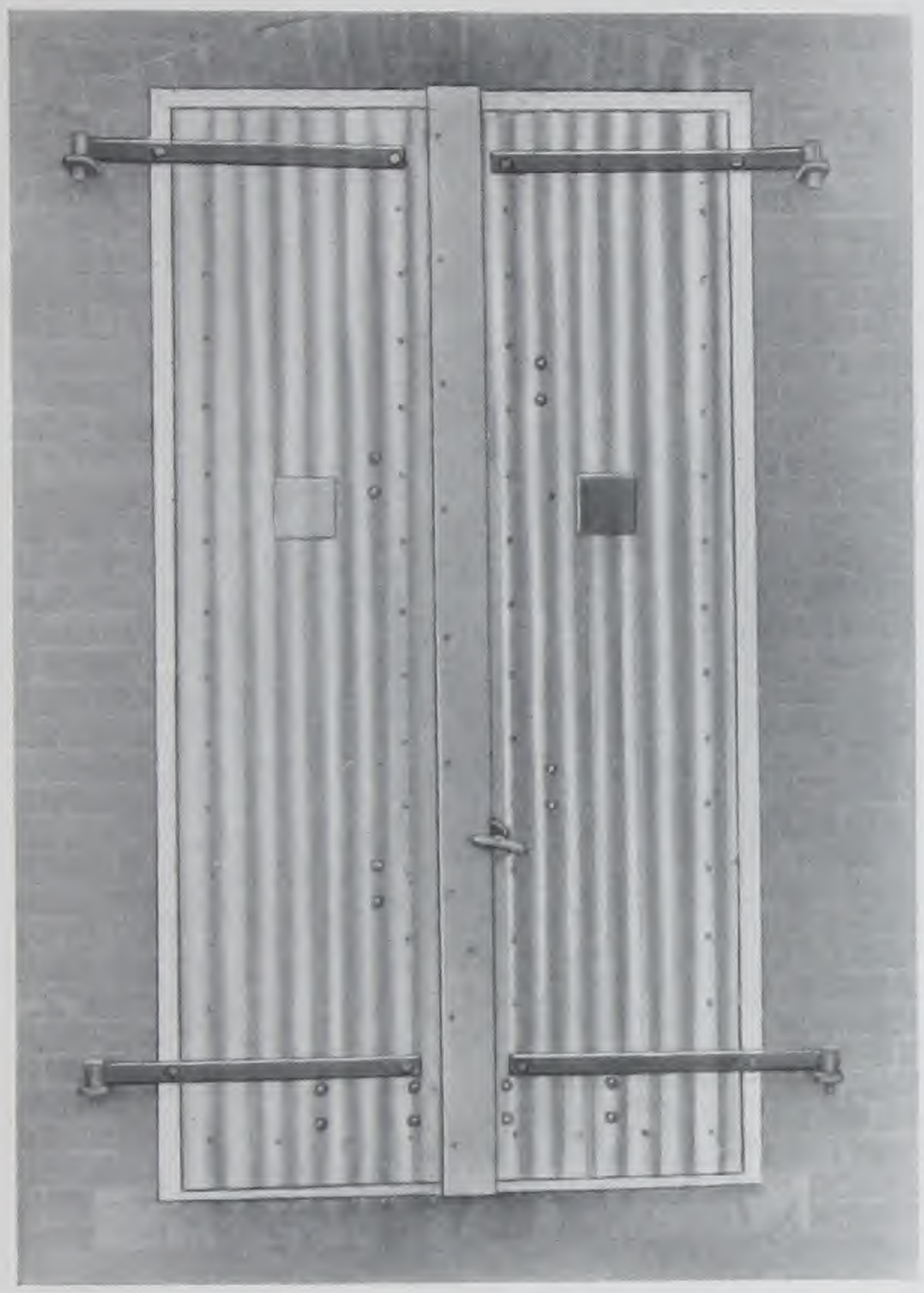




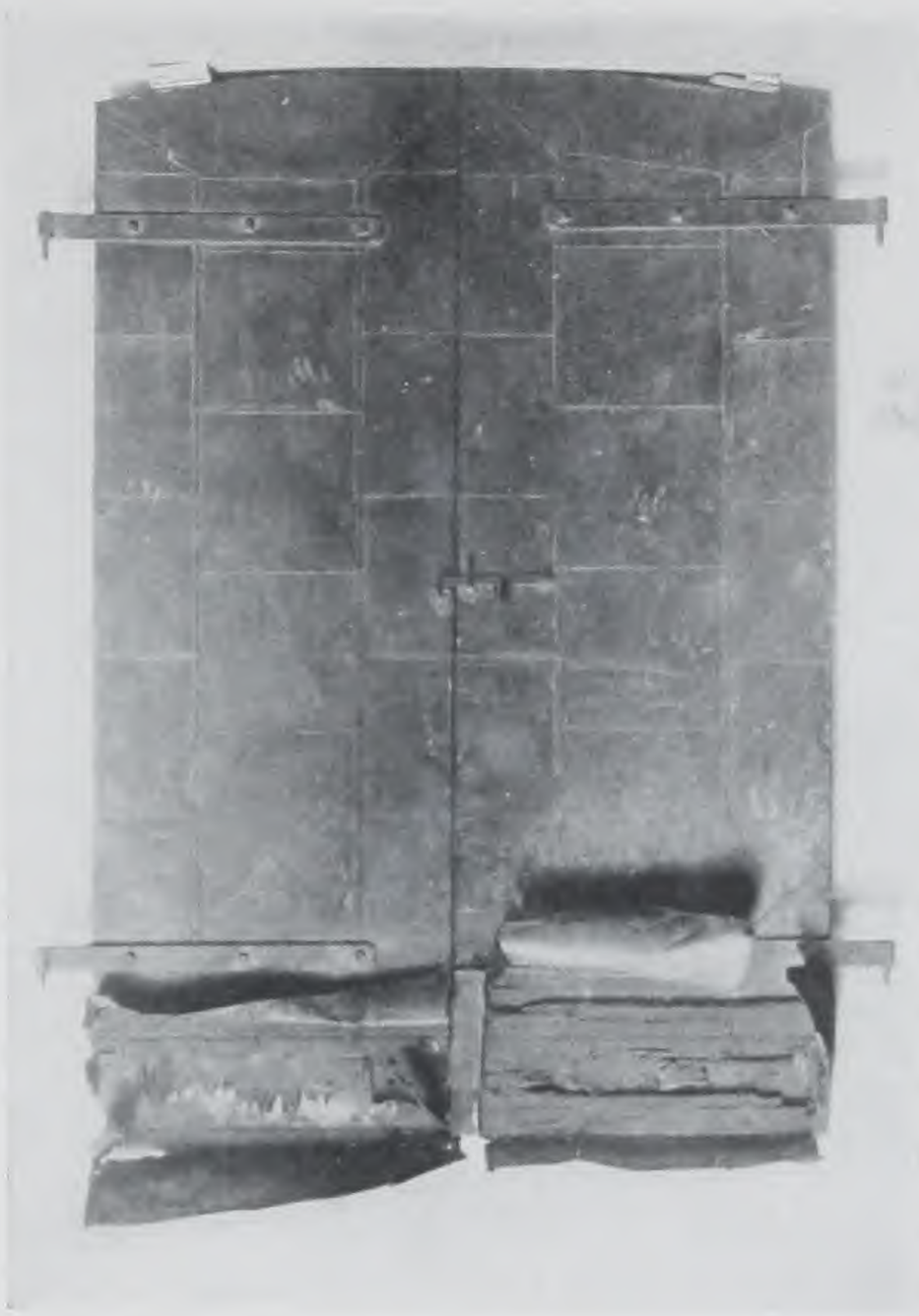
The four pictures on this page clearly illustrate some of the numerous defects of tin-clad fire doors. The upper left-hand view shows replacement of damaged tin at bottom of doors by heavy steel plates. Upper right-hand picture shows heavy steel binder put on to repair damaged edge of door. Lower left-hand picture is a view of a non-standard tin-clad fire door that was completely destroyed by spontaneous internal combustion. Lower right-hand picture shows a long series of tin-clad doors. Note badly buckled appearance of envelope or tin covering on these doors.

Don't make a mistake and buy *this* kind of door

NOTE.—Evans "Almetl" Doors do not rust and are indestructible in use!



Evans "Almetl" Double Swinging Fire Shutters in closed position. Note the Astragal strip in center.



View of a pair of Tin-Clad Fire Shutters that were badly affected by dry rot.

Evans "Almetl" Fire Shutters

(Patent Pending)

Lightest and Best

The Evans "Almetl" Fire Shutters are fully approved by the Underwriters' Laboratories, Chicago, Ill., and the Factory Mutual Laboratories, Boston, Mass.

The construction of our Fire Shutters is designed along the lines of our Fire Doors, but they are not as wide along the edges as our doors, so as to make them suitable for the purpose intended. The reduction in width of frame lightens weight, but not strength.

In rigidity, strength, durability, ease of operation, simplicity of erection and minimum expense for maintenance, they are without an equal anywhere. We can supply fully approved hardware. Full insurance rebates are allowed for proper installation of these Shutters.

In making inquiries for Evans "Almetl" Fire Shutters, please observe in general the details that we ask for in respect to our Doors, and be sure to state whether the Shutters are for square or arch top openings, whether they are single or double, and whether flush or overlap type.

All buildings that can be reached by a fire from nearby or adjoining buildings, should be equipped with our Evans "Almetl" Fire Shutters, as they constitute the best, and therefore the least expensive, protection that can be procured for the purpose.

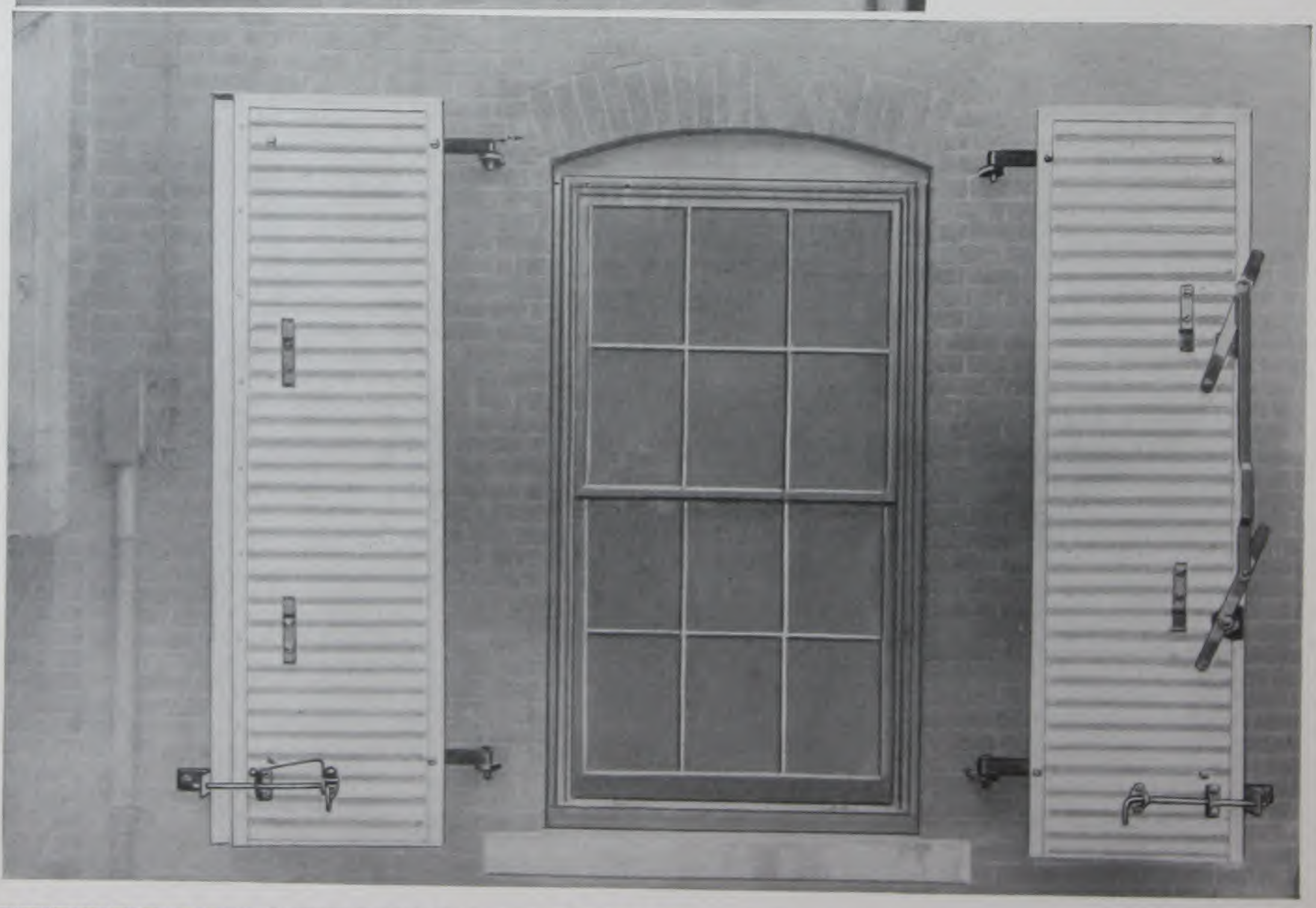
NOTE.—Evans "Almetl" Shutters are rigid in plane—do not bend transversely and are indestructible in use.

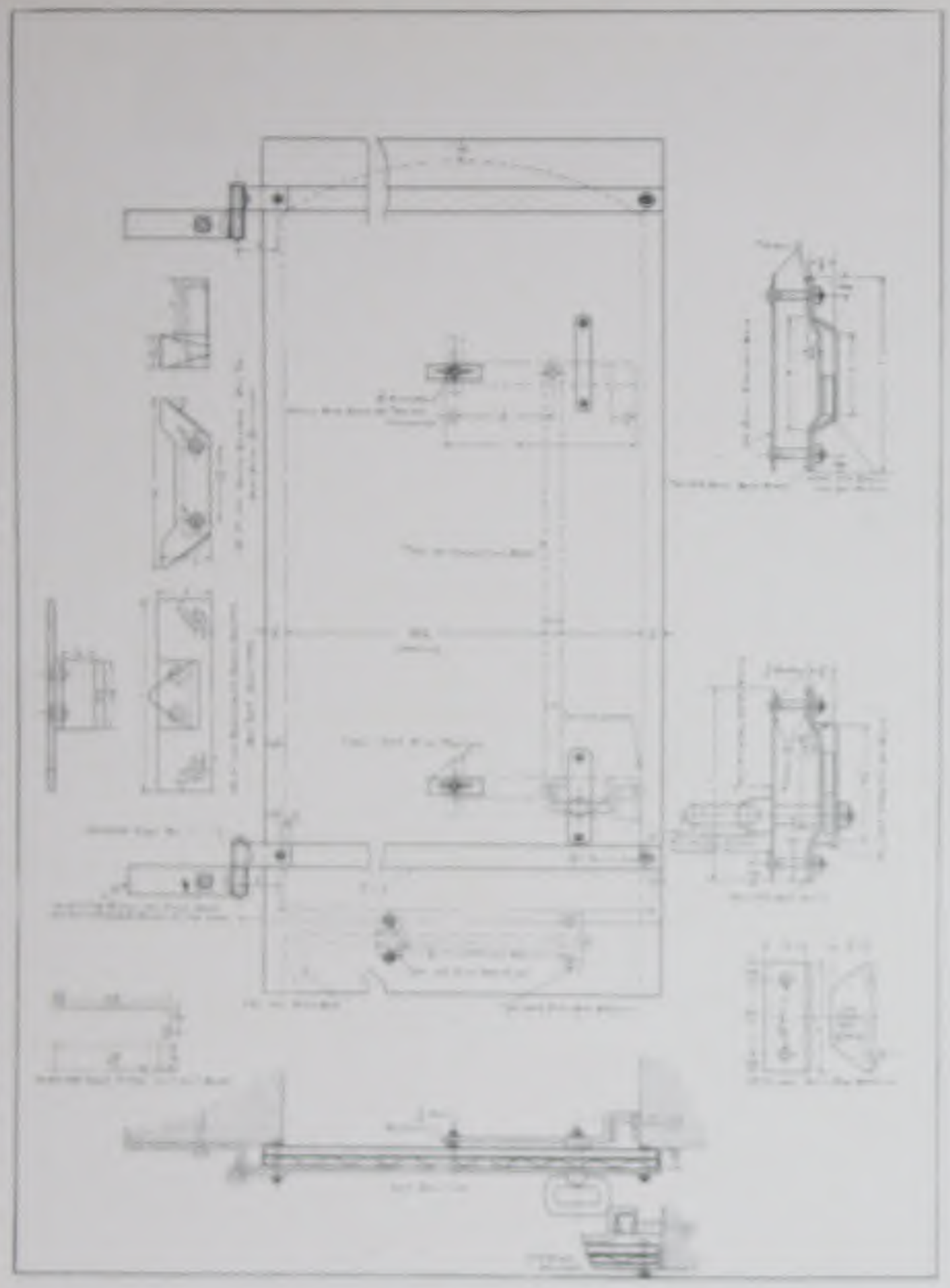
Do Not Rot or Rust!

Two views of Evans "Almetl" Single Swinging Fire Shutters, Overlap Type, on building of Northeastern Storage Warehouse Co., Philadelphia.

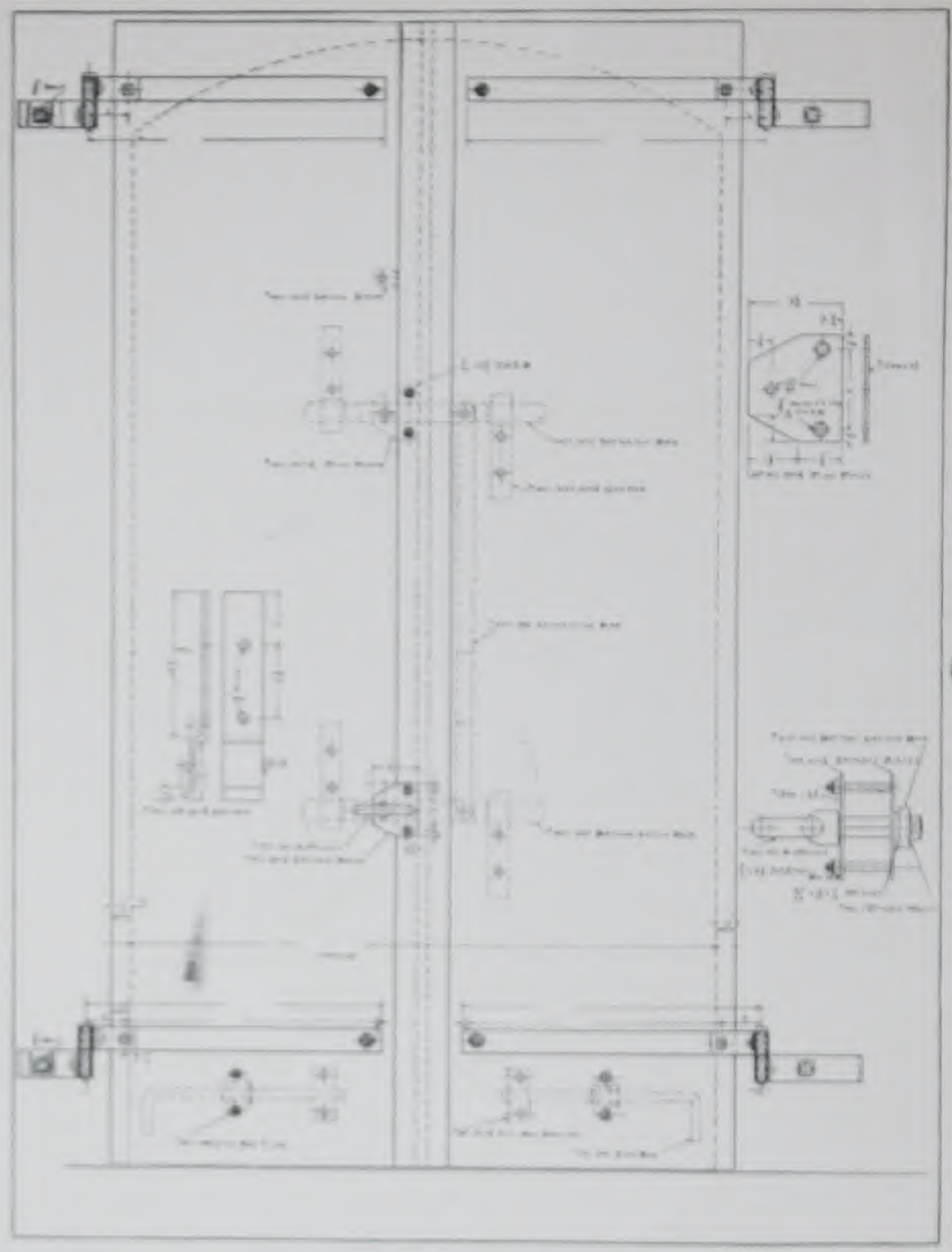
Arrow in upper picture points to damaged tin-clad shutter. Because of dry rot it was necessary to replace Tin-clad Shutters with the "Almetl" Shutters.

Indestructible In Use!





Erection Plan for Evans "Alnett" Single Swinging Fire Shutters, Overlap Type, arched top opening—using M. & E. R-W No. 307 Hardware.



Erection Plan for Evans "Alnett" Double Swinging Fire Shutters, Overlap Type, arched top opening—using M. & E. R-W No. 307 Hardware.

NOTE—Evans "Alnett" Shutters are rigid in plane—do not bend transversely and are indestructible in use.

SMALL, PARTIAL LIST OF CONCERNS NOW USING EVANS "ALMETL" FIRE DOORS (OR SHUTTERS) IN THEIR PROPERTIES

ARKANSAS
Kaucher Hodges & Co.....Little Rock

COLORADO
Wm. Volker & Co.....Denver
Colorado Tire & Rubber Co.....Denver
La Junta Plumbing & Heating Co.La Junta
J. C. Robinson Seed Co.....Rocky Ford
Charles Emerick .....Trinidad

CONNECTICUT
N. Y., New Haven & Hart. R. Co...Danbury
Hartford Electric Light Co.....Hartford
Rockwell Drake Corporation.....Plainville
Scoville Mfg. Co.....Waterbury

DELAWARE
American Vulcanized Fibre Co.....Newark
Kennard & Co.....Wilmington

FLORIDA
H. N. Sulton.....Jacksonville

GEORGIA
Duane Chair Co.....Dalton

ILLINOIS
Joseph Knapp .....Belleville
Otto Elliott .....Cairo
Arnold Company .....Chicago
Western Electric Co.....Chicago
John Ramcke & Son.....Chicago
George B. Swift & Co.....Chicago
Hawkeye Compound Co.....Chicago
Dryden Rubber Co.....Chicago
Standard Paint Co.....Chicago Heights
Wm. C. F. Kuhne.....Muncie
Naperville Lounge Co.....Naperville
Illinois Central R. R. Co.....Palestine
Peoria Malting Co.....Peoria

INDIANA
Rubber Regenerating Co.....Mishawaka
John Obrecht Sons Mfg. Co.....Tell City
Tell City Desk Co.....Tell City
Grasselli Chemical Co.....Terre Haute
Wm. H. Clore Mfg. Co.....Washington

IOWA
Carstens Brothers .....Ackley
A. J. Bridges .....Bedford
J. J. Peterson.....Floyd
T. F. McDonnell & Co.....Greene
Lauritzen Construction Co.....Hazleton
Ottumwa Supply & Construction Co...Leon
Iowa Hardware Mut. Ins. Bldg..Mason City
Theodore Stark & Co.....New Hampton
G. L. Smith.....Shell Rock
John G. Miller.....Urbana
Hansen & Hadley.....Waterloo
Overland Garage Co.....Waterloo
Peterson Brothers, Mortuary.....Waterloo
Wartburg Publishing Co.....Waverly
Waverly Lumber Co.....Waverly
G. L. Smith.....Winthrop

KANSAS
Emporia Ice & Cold Storage Co....Emporia
E. T. Fay.....Harris
Brownfield-Sifers Candy Co.....Iola
Kaw Valley Cannery Co.....Lawrence
Lawrence Paper Mfg. Co.....Lawrence
R. L. Miller.....Mayette
J. W. Prince.....Parsons
Steel Fixture Mfg. Co.....Topeka
J. H. Mitchell & Son.....Wellington
Western Iron & Foundry Co.....Wichita

KENTUCKY
E. E. Campbell.....Arlington
Grain Elevator Co.....Lexington
Leader Building .....Lexington
Liggett & Meyers Tobacco Co....Lexington
L. W. Hancock Co.....Louisville
J. M. Guthrie.....Scottsville

MARYLAND
Rasin Monumental Co.....Baltimore
Baugh Chemical Co.....Canton

MASSACHUSETTS
Arlington Mills .....Lawrence
Worcester Electric Light Co.....Worcester

MICHIGAN
Detroit Ship Building Co.....Detroit
Detroit United Railways Co.....Detroit
Garfield Exchange .....Detroit
Great Lakes Engineering Co.....Detroit
Hemlock Exchange .....Detroit
Michigan State Telephone Co.....Detroit
Standart Brothers .....Detroit
Studebaker Auto Corporation.....Detroit
W. E. Wood Co.....Flint
Brown & Sehler.....Grand Rapids
Grand Rapids Railway Co....Grand Rapids
Imperial Furniture Co.....Grand Rapids
Nichols & Cox Co.....Grand Rapids
Wilson-Wiggins Co.....Grand Rapids
J. Herman & Son.....Ionia
Capital Auto Co.....Lansing
Capital State Bank Building.....Lansing
Wolverine Auto Co.....Lansing

MINNESOTA
E. A. Siddall .....Wells
H. W. Lea.....Winona
New Winona Mfg. Co.....Winona

MISSISSIPPI
Farmers' Warehouse Co.....Oxford

MISSOURI
Ford Motor Co.....Kansas City
Maloney Electric Co. .....St. Louis
International Shoe Co.....St. Louis
Century Electric Co.....St. Louis
Henry Militzer .....St. Louis
Saline Electric Co.....St. Louis
Theatre Building .....Springfield
Dr. J. A. Crockett.....Stanbury
Elk Hotel Building.....Trenton
Langston Mercantile Co.....West Plains

NEBRASKA
G. O. Fairchild.....Bertrand
G. O. Rains.....Beatrice
Cushman Motor Works.....Lincoln
Lincoln Telephone & Telegraph Co..Lincoln
Holmes-Adkins Co. .....Omaha

NEW JERSEY
Farr & Bailey Mfg. Co.....Camden
Strandwitz & Scott.....Camden
American Can Co.....Edgewater
Theodore F. Baulig.....Hammonton
Bound Brook Oil-Less Co.....Lincoln
Millville Mfg. Co.....Millville
Mardon, Orth & Hastings Co.....Newark
Thomas F. Farrell.....Newton
Botany Worsted Mills.....Passaic
A. C. Thompson Auto Co.....Plainfield
Matthews Construction Co.....Princeton
John A. Roebling's Sons Co.....Trenton
Fitzgibbon & Crisp Co.....Trenton

NEW MEXICO
Gross-Kelly Co. .....Albuquerque
Eubank & Dibbrell.....Albuquerque

NEW YORK
Binghamton Lounge Co.....Binghamton
E. B. Rich .....Binghamton
Kroehler Mfg. Co.....Binghamton
National Analine & Chemical Co..Brooklyn
American Mfg. Co.....Brooklyn
National Cold Storage Co.....Brooklyn
Seavey Brothers .....Brooklyn
Pratt & Letchworth Co.....Buffalo
Dolgeville Felt Shoe Co.....Dolgeville
New York Central R. R. Co.....Gardenville
Putnam Terminal .....High Bridge
Cushman Bakery Building...New York City
Mt. Vernon Telephone Sta...New York City
Standard Paint Co.....New York City
S. Rawitser Co.....New York City
Certainteed Products Co.....Niagara Falls
Allen-Herschel Co.....No. Tonawanda
Overland Syracuse Co.....Syracuse
Van Zandt, Jacobs & Co.....Troy

NORTH CAROLINA
Va-Carolina Chemical Co.....Charlotte
Kerr Bleaching & Finishing Co....Concord
Imperial Tobacco Co.....Durham
Robeson Mfg. Co.....Lumberton
Ledbetter Mfg. Co.....Leak
R. C. Lindsay Co.....Page
Paola Cotton Mill.....Statesville

NORTH DAKOTA
Baldwin Flour Mill.....Casselton
Gladstone Milling Co.....Gladstone

OHIO
The Firestone Tire & Rubber Co.....Akron
B. F. Goodrich Co.....Akron
Park School .....Cambridge
The Bonnot Co.....Canton
M. Schachne & Sons.....Chillicothe
Central Annex School.....Cleveland
Ferro Concrete Construction Co...Cincinnati
Conneaut Leather Co.....Conneaut
Conneaut School Board.....Conneaut
Culp Block .....Conneaut
Dicks-Pontius Building.....Dayton
Sam Albert & Brother.....Utica

OKLAHOMA
C. C. Van Tine.....Bartlesville
Caddo Construction Co.....Boynton
Manhattan Construction Co....Council Hill
Commonwealth Cotton Oil Co.....Cushing
H. E. McCart.....Durant
Griffin Grocery Co.....McAlester
Russell Hardware Co.....McAlester
William Lowe .....Okmulgee

NEW JERSEY
Electrical Alloy Co.....Morristown

THE PANAMA CANAL
For the U. S. Army Ordnance Depot,
Corozal, Canal Zone

PENNSYLVANIA
Lehigh-Portland Cement Co.....Allentown
American Bronze Co.....Berwyn
Barger, Baine & Munn, Inc....Bloomsburg
Standard Steel Works Co.....Burnham
Weisenstein Brothers .....Butler
Charleroi Iron Works.....Charleroi
W. S. Barstow & Co.....Easton
Pennsylvania Utilities Co.....Easton
Asbestos Protected Metal Co.....Economy
Acme Wagon Works.....Emigsville
Schuylkill Railway Co.....Girardville
Pennsylvania R. R. Co.....Harrisburg
Henry Mininger .....Hatfield
The Hamilton Watch Co.....Lancaster
Krupp Foundry Co.....Lansdale
Atlantic Refining Co.....Philadelphia
Harrison Brothers & Co.....Philadelphia
McCaffrey File Co.....Philadelphia
Edward C. Budd Mfg. Co.....Philadelphia
Jessup & Moore Paper Co.....Philadelphia
Keystone Spinning Mills.....Philadelphia
Northern Liberties Gas Co.....Philadelphia
Northeast Stor. Warehouse Co.Philadelphia
Phila. & Reading R. Co.....Philadelphia
H. C. Rea Building.....Philadelphia
Roberts & Mander Stove Co...Philadelphia
Schaum & Uhlinger Co.....Philadelphia
Sun Shipbuilding Co.....Philadelphia
Taubel Brothers .....Philadelphia
The Bell Co. Warehouse.....Philadelphia
D. B. Martin Co.....Philadelphia
Manufacturing Co. of America.Philadelphia
Henry Y. Mitchell Co.....Philadelphia
India Refining Co.....Philadelphia
Concrete Construction Co.....Philadelphia
Pennsylvania Railroad Co.....Philadelphia
Barrett Mfg. Co.....Philadelphia
Frankford, Tacony & Holmesburg R. Co.,
Philadelphia
John Wanamaker .....Philadelphia
Floyd Wells Co.....Royersford
Susquehanna Silk Mills.....Sunbury
L. H. Gillmer & Co.....Tacony
F. D. Beyer & Co.....Tyrone
Uniontown Hospital .....Uniontown

SOUTH CAROLINA
Cotton Oil Co.....Bamberg
The Wateree Mills.....Camden
Va-Carolina Chemical Co.....Charleston
Gallivan Building Co.....Columbia
Addison Mills .....Edgefield
Winnesboro Mills .....Winnesboro

TENNESSEE
Harlan-Morris Mfg. Co.....Jackson
Kaucher, Hodges & Co.....Memphis
Orgill Brothers Co.....Memphis
Patterson Transfer Co.....Memphis
Valley Cotton Oil Co.....Memphis
Memphis Motor Co.....Memphis
Memphis Terminal Corporation....Memphis

TEXAS
Overland Texas Company.....Amarillo
J. W. Singleton.....Amarillo
City of Aransas Pass.....Aransas Pass
Brydson Brothers .....Austin
H. C. Helmuth .....Bellville
H. T. Ponsford & Sons.....El Paso
City of Hearne.....Hearne
Municipal Warehouse .....Houston
Lockhart Oil & Gin Co.....Lockhart
Landa Cotton Oil Co.....New Braunfels
M. P. Kelley.....Paris
Paris Building & Supply Co.....Paris
Cameron Water Pwr. & Lt. Co..San Antonio
Firestone Building .....San Antonio
City & County Hospital.....San Antonio

VIRGINIA
John H. Heald & Co.....Bradford
Riverside Cotton Mills.....Danville
Cameron Dunlap .....Drakes Branch
Norfolk Warehouse Corporation.....Norfolk
British-American Tobacco Co.....Richmond
Kingan & Co.....Richmond
Export-Leaf Tobacco Co.....Richmond
W. S. Ragland.....Richmond
Va-Carolina Chemical Co.....Richmond

WEST VIRGINIA
Interwoven Mills .....Martinsburg
Globe Automatic Sprinkler Co.....Warwood
Bell Telephone Co.....Wheeling
Central District Telephone Co.....Wheeling

WISCONSIN
Fond du Lac Church Fur. Co...Fond du Lac

WYOMING
Sheridan Iron Works.....Sheridan

Insist on Evans "Almetl"—join this list of satisfied users.

STAR VENTILATORS

PATENTED

are extensively used on many of the most notable buildings in America, while the other Merchant & Evans specialties, briefly described on the following pages—**High Grade Roofing Plates, Metal Spanish Tiles** and **Metal Gothic Shingles**—are almost as well known.

Back of these products stands over a quarter century of satisfactory service in all parts of the country.

Among the most prominent users of Star Ventilators, we note such firms as:

Partial List of very prominent users of Star Ventilators:

National Steel Car Co., Hamilton, Can.
Berlin Construction Co., Berlin, Conn.
American Brass Co., Torrington, Conn.
E. I. DuPont de Nemours Powder Co., Wilmington, Del.
Southern Railway Co., Washington, D. C.
U. S. Government, practically all departments.
Armour & Co., Chicago, Ill.
Chicago & Northwestern R. R. Co., Chicago.
Cudahy Packing Co., Chicago, Ill.
Fairbanks, Morse & Co., Chicago, Ill.
Marshall Field & Co., Chicago, Ill.
Gulf, Colorado & Santa Fe R. Co., Chicago.
Texas Co., Chicago, Ill.
Pere Marquette R. R. Co., Detroit, Mich.
Buhl Sons & Co., Detroit, Mich.
Crane Co., St. Louis, Mo.
Illinois Steel Co., Chicago, Ill.
John A. Roebling's Sons Co., Trenton, N. J.
Lackawanna Steel Co., Buffalo, N. Y.
American Bridge Co., New York.
British American Tobacco Co., New York.
Lehigh Valley R. R. Co., New York.
New Jersey Zinc Co., New York.
Newport News Ship Building & Dry Dock Co., New York.
New York Central R. R. Co., New York.
Old Dominion Steamship Co., New York.
Tidewater Oil Co., New York.
American Locomotive Co., Schenectady, N.Y.
General Electric Co., New York.
Utica State Hospital, Utica, N. Y.
LaBelle Iron Works, Steubenville, Ohio.
American Car & Foundry Co., Berwick, Pa.
Lehigh Coal & Navigation Co., Philadelphia.
Pennsylvania R. R. Co., Philadelphia.
Philadelphia & Reading R. R. Co., Phila.
American Sheet & Tin Plate Co., Pittsburg.
Carnegie Steel Co., Pittsburg, Pa.
Delaware, Lackawanna & Western R. R. Co., Plymouth, Pa.
Swarthmore College, Swarthmore, Pa.
Hampton Normal & Agricultural Institute, Hampton, Va.
Seaboard Air Line Co., Norfolk, Va.
Virginian R. R. Co., Norfolk, Va.
Imperial Tobacco Co., Richmond, Va.
Virginia-Carolina Chemical Co., Richmond.
Norfolk & Western R. R. Co., Roanoke, Va.

Woolworth Building, New York

WE CLAIM

"STAR" Ventilators will give MORE CUBIC FEET air exhaust capacity per DOLLAR INVESTED, under like conditions of service and of equal construction strength, THAN ANY OTHER MAKE OF VENTILATOR.

1,000,000 Star Ventilators in use

There are many reasons for "Star" dominance in the Ventilator field.

First—"Star" Ventilators give maximum exhaust—viz., more cubic feet air exhaust capacity per dollar invested than any other Ventilator. They keep the air in motion, exhausting and expelling impure air and circulating the fresh air which replaces it.

Second—There is no possibility of down draughts with the "Star."

Third—The "Star" is storm proof.

Fourth—The "Star" is more pleasing in design than any other ventilator.

Fifth—The "Star" is more durable.

Sixth—The "Star" Fire Retarding Ventilators contain within themselves dampers held open by a chain with a fusible link, against gravity. In case of fire, dampers automatically close, cutting off the exhaust, hence are a recognized medium of safety in event of internal combustion, constituting in fact a series of safety valves. After the fire is extinguished the chain device permits the ventilators to be readily opened, thus clearing the building of smoke, gases, etc.

Seventh—The "Star" Fire Retarding Skylight Ventilator distributes light through a section made up of heavy wired glass.

Municipal Building, New York

TABLE OF SIZES

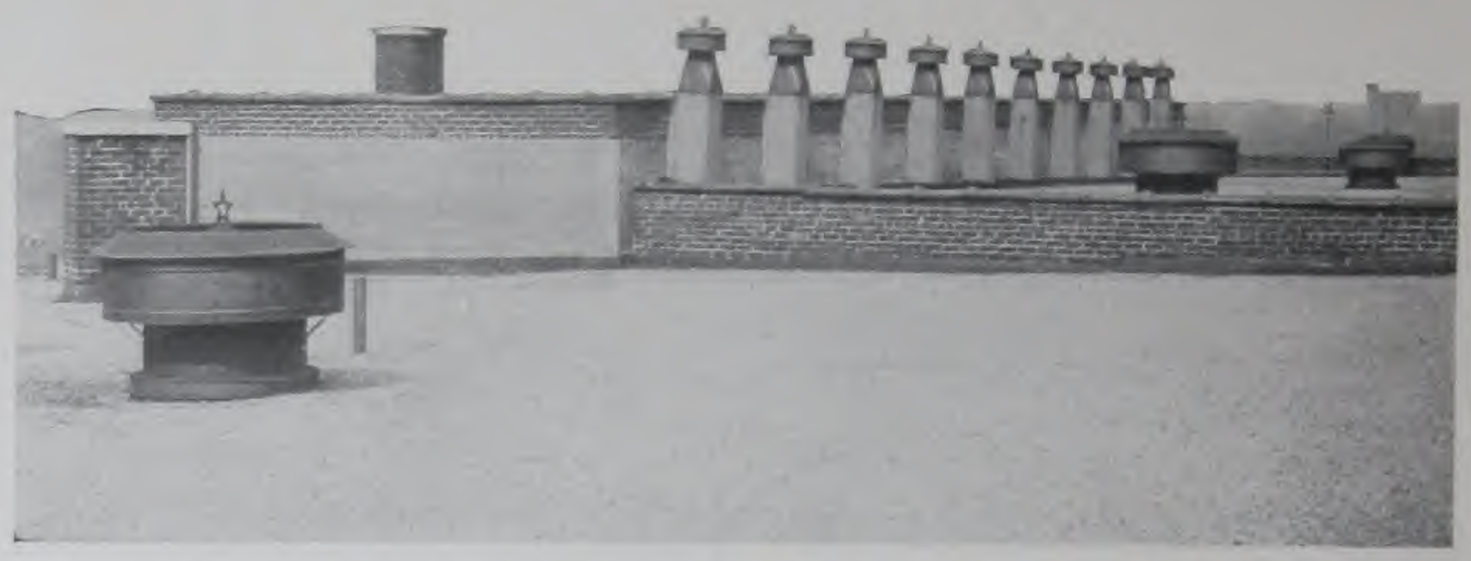
Galvanized New Standard "Star" Ventilators

Size	Gauge Steel	Net Wt. Pounds
3 inch	26	⅝
4 "	26	1
5 "	26	1½
6 "	26	2¼
7 "	26	3
8 "	26	4½
9 "	26	5
10 "	26	6¾
12 "	24	11
14 "	24	14
16 "	24	20
18 "	22	27½
20 "	22	34
22 "	22	36
24 "	22	44
28 "	20	69
30 "	20	84
36 "	20	117
40 "	20	145
42 "	20	150
48 "	20	200
54 "	18	288
60 "	18	355
72 "	18	570
84 "	18	828
96 "	18	924

Net prices sent upon application to any office of the Company.

Ventilators of stock sizes above or of special designs, made in Galvanized Steel, Copper or other metals specified by purchasers.

New Standard "Star" Ventilator with Base



Wagner Bakery, Detroit, Mich., showing a few of the "Star" Ventilators in use.

Types of "Star" Ventilators

The four standard types of "Star" Ventilators are:

1. New Standard "Star" Ventilator.
2. New Fire Retarding "Star" Ventilator.
3. Skylight "Star" Ventilator.
4. Fire Retarding Skylight "Star" Ventilator.

These Ventilators are usually made from galvanized steel or iron, and from copper.

In connection with the Ventilator we can furnish the following:

1. Regulation bases for any roof—to fit chimneys, etc.
2. Special bases for peculiar conditions, of any design desired.
3. Flat disc dampers to fit any base, hand-controlled by chain through opening.

Important.—We strongly recommend that "Star" Ventilators be located at least 30 inches above ridge or slope of roof. Best results are obtained by locating Ventilator at highest possible point **above** the ridge.

Fire Retarding "Star" Ventilator

With Patented Gravity Damper

OPEN

The vertical slide Damper operates by lever movement, controlled by chain with fusible link. In case of fire, link parts and damper drops to closed position by force of gravity, cutting off all draft. Damper can be regulated by disengaging chain from control hook.

CLOSED

Fire Retarding Skylight "Star" Ventilator

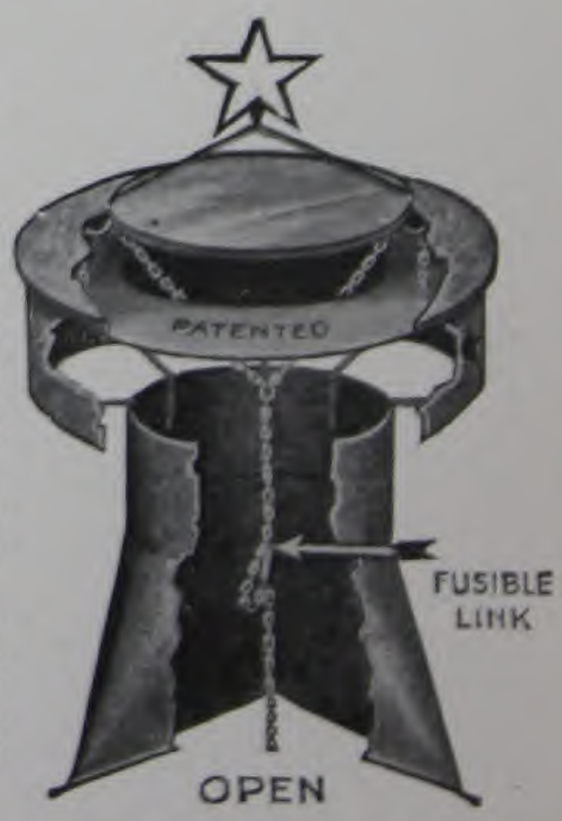
(Patented)

This device is recognized as a superior Skylight and Ventilator. It is absolutely weather proof with ample exhaust capacity.

This Skylight Model, provided with a movable Valve or Damper, is controlled by chain with a Fusible Link. In case of fire, the link parts and the Damper drops by gravity.

The movable Valve or Damper in this type can be changed, at will, from an open to a closed position, or vice versa.

Notice.—The above types of Ventilators and Dampers are protected in certain features by patents, and by our universally well-known, distinctive trade-mark, and by the "Star" appearing on top of the Ventilator.



Efficient Ventilation

PLATTSBURG BARRACKS, N. Y.

Efficient ventilation is secured through the installation of a ventilator, the cost and maintenance charges of which are in direct proportion to the amount of exhaust obtainable.

The improved "Star" Ventilators have been designed with this basic principle in mind. They are therefor the simplest, most compact and most efficient ventilators in design, compared with cost, in the market—the cheapest investment in ventilation procurable in the country.

To other ventilators have been added complex and expensive improvements. They have been mounted on higher bases so as to give greater access to outer air currents, but the increase in exhaust power has not kept pace with the increase in cost.

By adhering strictly to the simplicity of our design and using a ventilator of larger size where an increased exhaust power is demanded, we are able to keep the cost per foot of exhaust at the minimum rate, which is lower than that of any ventilator of similar or more complex design, on the market.

Our facilities for the production and marketing of our improved "Star" Ventilators were never better. We are prepared to solve the most difficult problems of ventilation with the best designed ventilator on the market.

WE CLAIM

"STAR" Ventilators will give MQRE CUBIC FEET air exhaust capacity per DOLLAR INVESTED, under like conditions of service and of equal construction strength, THAN ANY OTHER MAKE OF VENTILATOR.

Pointers on Good Ventilation

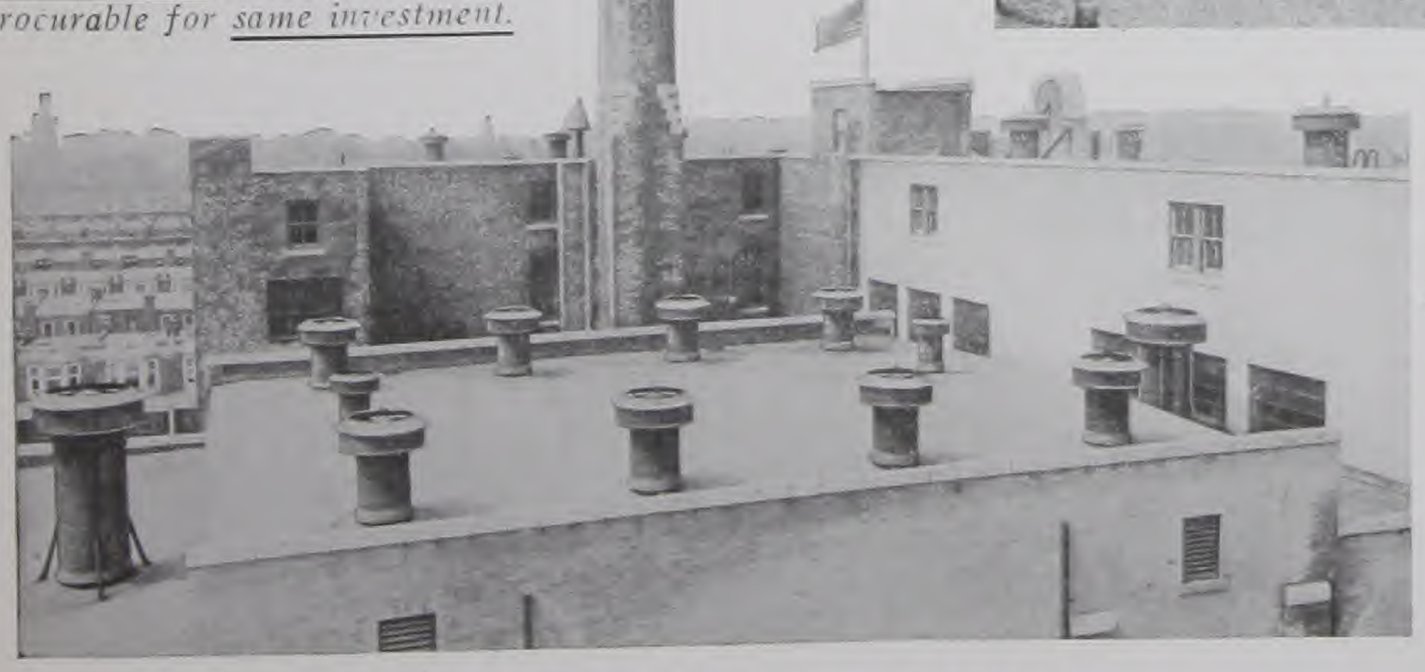
The purpose of ventilation is to exhaust vitiated or foul air from an enclosed area and admit fresh, pure air to replace it. "Star" Ventilators exhaust foul air without possibility of down draught.

Fuel is saved by such proper ventilation, and efficiency of the work force assured.

Modern ventilation practice is based on a minimum supply of 30 cubic feet of air per minute per person in area to be ventilated.

NOTE.—Static ventilators (like these) should always be of largest diameter buyer can afford and install, because when air is still (as occurs most of the time) the larger the roof opening the better the ventilation. Always buy largest diameter vent of sound design procurable for same investment.

KENSINGTON HIGH SCHOOL, PHILADELPHIA.



MITCHELL PUBLIC SCHOOL, PHILADELPHIA.

The following schedule of air supply per hour per person is practical under ordinary conditions:

	Cu. Ft. per Hour	
Hospitals	3600	per Bed
Legislative Assembly Halls	3600	" Seat
Barracks, Bedrooms and Workshops	3600	" Person
Schools and Churches	2400	" "
Theatres and Ordinary Halls of Audience	2400	" Seat
Office Rooms	1800	" Person
Dining Rooms	1800	" "

Above does not apply to all cases, but is a good, practical working basis.

"Merchant's Old Method" ROOFING TIN

has been the accepted standard quality roofing plate for the last quarter of a century.

When properly applied, it makes a roof that is light, clean, sanitary and a thorough protection from fire, lightning and storm.

Copper Bearing Base

Very Heavy Coating **Palm Oil Process**

NATIONAL SOLDIERS' HOME (VA.), COVERED WITH 6,500 SQ. FT. "MERCHANT'S OLD METHOD."

STATE CAPITOL, RICHMOND, VA., COVERED WITH 10,000 SQ. FT. "MERCHANT'S OLD METHOD."

As compared with **Wooden Shingles** and **Composition** or **Slag** and **Gravel Roofing**, **Tin Roofs are superior** for the following reasons:

Absolutely Fireproof
Salvage
Appearance
Durable
Adaptable
Minimum Weight
Flexible
Low First Cost
Sanitary
Weather Proof
Lightning Proof
Low Insurance
Minimum Cost of Maintenance

Merchant's Metal SPANISH TILES

when properly applied, make a storm-proof, ornamental, fire-resisting roof. The fact that millions of square feet of these Tiles have been sold and that universal satisfaction has been given wherever they have been used is an indication of their merit and worth as roofing material.

SHOWING APPLICATION OF "SPANISH" TILES.

Merchant's "Gothic" Shingles

SHOWING APPLICATION OF "GOTHIC" SHINGLES.

Offer full protection against fire and storm. They are especially designed for churches, residences and other buildings where a roof of moderate price and distinctive appearance is desired. They can be applied more readily than any other form of metal roofing.

We will gladly send samples and prices upon request.

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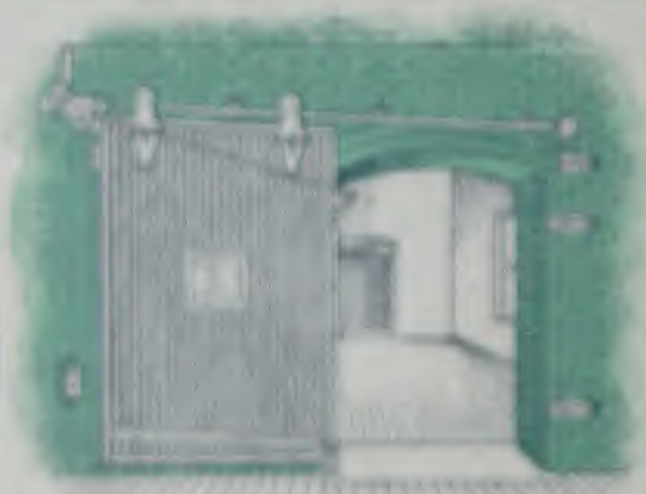
CCA

EVANS "ALMETL"
FIRE DOORS & SHUTTERS
AND THE FAMOUS
"STAR" VENTILATORS



EVANS "ALMETL" FIRE DOOR

POWELL EVANS, PRESIDENT.

MERCHANT & EVANS Co.

PHILADELPHIA

NEW YORK
BALTIMORE
ATLANTA
CLEVELAND
WHEELING
CHICAGO
ST. LOUIS
KANSAS CITY